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Report of the Fifth Session of the Indian Ocean Tuna Commission

Victoria, Seychelles, 11-15 December 2000

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REPORT
of the
FIFTH SESSION OF THE
INDIAN OCEAN TUNA COMMISSION
Victoria, Seychelles, 11-15 December 2000

INDIAN OCEAN TUNA COMMISSION
VICTORIA, 2001

MEMBERS OF THE INDIAN OCEAN TUNA COMMISSION
AS AT 11 DECEMBER 2000

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Executive Summary

The Fifth Session of the Indian Ocean Tuna Commission (IOTC) was held in Victoria, Seychelles, 11-15 December 2000. The Commission welcomed the accession of the Sultanate of Oman and granted the status of Cooperating non-Member Party to the Republic of Philippines.

The Commission took note of the report of the Scientific Committee and endorsed its main recommendations.

The Commission decided that, in the absence of clear indications on the long term effects of restrictions on catches of tropical tunas, in particular bigeye tuna, implementation of a moratorium on purse seine fishing on floating objects or a reduction of longline capacity would be dealt with in its following Session. Further considerations included the difficulty of establishing present fishing capacity and in ensuring that such catch reductions would be applied by all the components of the fishery. However, the Commission noted the advice from the Scientific Committee that further increases in fishing effort should be avoided.

Noting the continued low participation of scientists from coastal countries in Working Party activities, the Commission recommended that all interested parties should inform the Secretariat on their specific needs for training to permit the estimation of the costs involved to address requests to possible donors. Several delegations suggested that the budget of IOTC should be expanded to include training courses both in association with Working Parties and separately.

Two resolutions were adopted during this Session. Resolution 00/01 deals with compliance with mandatory statistical requirements for IOTC contracting and collaborating parties. Resolution 00/02 encourages contracting and collaborating parties to take part in the survey of predation of longline-caught fish.

The Commission agreed that the term "flag of convenience" could be used until COFI had decided on the definition and use of the appropriate terminology resulting from the negotiation of the IPOA on IUU Fishing, noting that discussion on this subject should be postponed until the next IOTC Session.

The Secretariat reported on contacts that had been held with the FAO Legal Office and the FishCode project concerning a proposal to organize a meeting to examine the provisions needed in the legislation of IOTC Members to respond to current and future international instruments. The Commission confirmed its interest in such an activity and requested the Secretariat to initiate preparatory studies and to seek funding. A final decision on holding a meeting would be taken at the next Session.

An outline was proposed for a Control and Inspection Scheme for IOTC. The Commission recognized that this proposal could not be properly addressed in the time available and it was agreed that an intersessional meeting would be held in Japan during 2001 to study the content and implementation of such a scheme.

A proposal was presented by the Scientific Committee for a five-year tagging programme, starting in 2002, covering a broad range of sizes of the three main tropical tuna species. This programme would be implemented over the whole Indian Ocean, using different tagging platforms. The total budget proposed, assessed at nearly US$ 19 million, includes costing for all the elements needed in the programme. The Commission supported the general concept of the tagging programme and agreed to proceed with the implementation of Phase I, using unspent funds from IPTP to initiate the process. The Commission also agreed that the Secretariat and some parties should seek extra-budgetary funding for the remainder of the programme. In conjunction with the tagging programme, the Commission also recognized that it was still essential to ensure the collection of quality fishery statistics and that these were of primary importance in any stock assessment.

Japan presented a proposed resolution concerning an action plan to ensure the effectiveness of the conservation programme for bigeye tuna in the IOTC Area of Competence. The proposal received wide support, but, as several delegations wished to further consider the details of the proposal, the Commission agreed to refer the draft resolution to the intersessional meeting on Inspection and Control and then to revisit this important issue at the Sixth Session.

The Commission unanimously recommended to the Director-General of FAO the appointment of Mr. David Ardill as the Executive Secretary of the Indian Ocean Tuna Commission for a period of three years starting January 2001.

The Commission approved the programme of work of the Secretariat and adopted a budget for 2001.

The Commission elected by consensus Ms Nita Chowdhury, from India, Mr Masayuki Komatsu, from Japan, and Mr Emilio Mastracchio, from the European Community, to serve as Chairperson and Vice-Chairpersons for the next biennium.

The Commission decided that the Fourth Session of the Scientific Committee will take place from December 4-7, 2001 in Seychelles and that the Sixth Session of the IOTC will be held on December 10-14, 2001.

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INTRODUCTION

1. The Fifth Session of the Indian Ocean Tuna Commission (IOTC) was held in Victoria, Seychelles, 11-15 December 2000. Representatives of 15 Members of the Commission, three States eligible to attend sessions of the Commission and from three intergovernmental organizations attended the Session. The list of participants is attached as Appendix I.

OPENING OF THE SESSION

2. The Chairman of the Commission, Mr S.K. Pather (Mauritius), informed the Secretariat that he was unable to continue in his functions. In consequence, the Session was chaired by the Vice-Chairpersons, Mr. M. Komatsu (Japan) for the first seven Agenda items and Agenda item XI and Mr. E. Mastracchio (European Community) for the remainder of the Session.

3. Mr. Komatsu welcomed the delegates and observers to the Session. His speech is reproduced in Appendix II.

4. Mr. Z. Karnicki, Director of Fishery Policy and Planning Division, Fisheries Department of FAO, welcomed delegates and observers to the Session. His speech is reproduced in Appendix III.

5. The Session was opened by Mr. D. Ernesta, Minister for Agriculture and Marine Resources of the Seychelles. His speech is reproduced in Appendix IV.

6. The delegations of Japan, European Union, Korea, India, Malaysia and Mauritius made opening statements. The texts of these statements are reproduced in Appendix V.

ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION (IOTC/S/00/01)

7. The Commission adopted the Agenda as presented in Appendix VI to this report. The documents before the Commission are listed in Appendix VII.

CONSIDERATION OF REQUESTS TO ACCEDE AS COOPERATING NON-CONTRACTING PARTIES

8. The Republic of the Philippines was welcomed by Members of the Commission as a Cooperating Non-Contracting Party, having undertaken to conform to all the Commission resolutions. Their speech to the Commission is reproduced in Appendix VIII.

ADMISSION OF OBSERVERS

9. Pursuant to Article VII of the Agreement establishing the IOTC, the Commission noted the presence of observers from the Islamic Republic of Iran and the Republic of Vanuatu, both entitled to attend as Members of FAO and admitted three intergovernmental organizations, the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), the South-East Asian Fisheries Development Center (SEAFDEC) and the International Commission for the Conservation of Atlantic Tunas (ICCAT) as observers. The opening statement by Vanuatu addressed to the Commission is reproduced in Appendix IX.

10. Pursuant to Article XIII 5. of the Rules of Procedure, the Commission was not able to accept the request for participation as an observer from the Organization for the Promotion of Responsible Tuna Fisheries, as an objection from a Member was deposited with the Secretariat within thirty days of the request being made. However, the Commission confirmed that it would accept the participation of this organization at next Session if the request is made in accordance with the Rules of Procedure.

MATTERS ARISING FROM THE FOURTH SESSION

Contracting and Cooperating party reports on implementation status of IOTC resolutions

11. Japan informed the Commission on the implementation of IOTC resolutions 98/01, 98/04, 99/01 and 99/02. The Japanese delegate stated that Japan had submitted all mandatory statistical data to the IOTC. Japan also stated that IOTC had been provided with lists of Japanese vessels fishing for tunas in the Indian Ocean in 1998 and 1999, as well as lists of vessels flying flags of convenience operating in the Indian Ocean that had exported tunas to the Japanese market in 1999. In relation to Resolution 99/01 the Commission was informed that a draft proposal to limit the fishing capacity of large-scale tuna vessels at an appropriate level would be put forward by Japan during the meeting. Japan also informed on progress in the implementation of resolution 99/02, including the creation of a joint programme between Japan and Taiwan Province of China to scrap Japan-built vessels flying flags of convenience belonging to the Japanese or Taiwanese owners.

12. Discussions were held on possible measures to reduce mortality of bigeye tuna. The Commission agreed that this concerned both juvenile tunas caught by purse seine sets on floating objects and adults caught by longline fisheries. In the absence of clear indications on the long term effects of such restrictions on catches of tropical tunas, in particular bigeye tuna. the Commission decided that this issue would be dealt with in its following Sessions. Further considerations included the difficulty of establishing present fishing capacity, taking account of changes of efficiency over time, and in ensuring that such catch reductions would be applied by all the components of the fishery. In consequence, no decision was taken to implement a moratorium on purse seine fishing on floating objects or a reduction of longline capacity. However, the Commission noted the advice from the Scientific Committee advised that further increases in fishing effort should be avoided.

13. The Commission adopted a resolution listed in Appendix X on compliance with mandatory statistical requirements for IOTC Members and requesting cooperation with non-Contracting Parties.

Training

14. The Commission noted the continued low participation of scientists from developing countries to the IOTC technical meetings, stressing the need to improve this situation. The association of training with Working Party activities was discussed by the Scientific Committee as a means of facilitating participation of coastal country scientists in these meetings.

15. In relation to the request addressed by the Fourth Session of the Commission that extra-budgetary funds be sought to facilitate training of scientists and technicians from coastal countries in conjunction with Working Parties, the Secretariat reported that correspondence had been addressed to a number of funding agencies to seek potential sources of funds. To date no donor has been secured and the Secretariat suggested that this type of funding might be easier to obtain through bilateral contacts. France and Japan informed the Commission on the existence of on-going bilateral technical cooperation programmes for training scientists of coastal developing countries. The European Community also informed that funds for training activities were included in several different budgets, including bilateral access agreements.

16. The Secretariat confirmed that training is being implemented as part of its core activities through the implementation of sampling programmes in different ports of the Indian Ocean. Training through secondments to the Secretariat can also be accommodated within the limitations of available staff resources.

17. The Commission also noted that these training activities could be carried out both at IOTC headquarters, through invitation of scientists from the region to the working parties or to training courses conducted before those meetings, and by Secretariat staff on missions in coastal states.

18. Several delegations stressed the importance of these activities, suggesting that the budget of IOTC should be expanded to include training courses both in association with Working Parties and separately.

19. The Secretariat presented, upon request from the Commission, the costs which the implementation of different training schemes, noting the difficulty of producing such an estimate. The Secretariat noted that short-term training courses could be conducted by the Secretariat's staff or by a consultant with costs ranging from US$60,000 to 80,000, while long-term training would involve engaging the services by the Secretariat of a new professional staff member, and the budget would have to be raised by more than US$150,000.

20. The Commission recommended that all interested parties should inform the Secretariat on their specific needs for training to permit the Secretariat to estimate the costs involved and address requests to possible donors on the basis of these calculations.

21. The Commission agreed that extra-budgetary funds should be sought to cover the costs of training activities. In this respect, it was noted that part of the remaining budget allocated to the Indo-Pacific Tuna Management and Development Programme (IPTP) might be available and could be used upon request (these funds were also considered in relation to funding tagging – see paragraph 61). The Commission recommended that the Secretariat should actively seek alternative sources of funding to cover these costs.

Terms of Reference for the Working Party on temperate tunas

22. The Commission approved the terms of reference of the Working Party on Temperate Tunas as listed in Appendix XI.

23. Japan noted that the Commission should continue with its work on the Working Party starting at any appropriate time.

Registration and exchange of information on vessels, including "flag of convenience" vessels, fishing for tropical tunas in the IOTC area of competence

24. The Secretariat informed the Commission on the situation concerning registration and exchange of information on vessels, including flag of convenience (FOC) vessels, fishing for tropical tunas in the IOTC Area of Competence. The Secretariat noted that eleven Contracting Parties and six Non-Contracting Parties have submitted lists of domestic and/or foreign vessels fishing for tropical tunas in the Indian Ocean during 1998 and 1999. The Secretariat also stated that the Secretariat of the Pacific Commission (SPC) had supplied a list of vessels operating in the central western Pacific and that ICCAT has supplied a list of non-reporting vessels operating in the three oceans. Other related data have also been acquired by the Secretariat through its sampling programmes.

25. From listings of over 7,000 records over several years in the Indian Ocean by contracting and Cooperating parties, the Secretariat has identified 2,917 individual vessels flying 33 different flags, some of which might have been misidentified. However, vessel identification and characteristics varied depending on the country submission data. The Secretariat further noted that the number of vessels recorded does not refer to the total number operating in the Indian Ocean as not all parties have submitted the information requested and some of these vessels may have moved elsewhere.

26. The Commission noted that, in some cases, vessels have been granted a licence to operate in more than one ocean during the year of reference and might not have fished in the Indian Ocean. The Commission recommended to all Contracting and Non-Contracting Parties that submissions

be made on the basis of a clear distinction between the number of vessels actually operating in the Indian Ocean each year and those registered by national authorities for fishing in the Indian Ocean.

Terminology for "Flag of Convenience" fishing

27. The FAO Legal Adviser informed the Commission that the term "flag of convenience" has no fixed legal meaning, though it was most probably used to refer to the problem of fishing vessels on an open register where the flag State is not exercising effective control over its vessels with respect to compliance with applicable conservation and management measures. The Legal Adviser noted that its use had, on occasions, given rise to complaints when used in certain contexts, while on other occasions, its use, with or without inverted commas, has not been a problem. Furthermore, new terminology was coming into use as a result of progress on the negotiation of an International Plan of Action (IPOA) on IUU (Illegal, Unregulated and Unreported) Fishing. This instrument is due to be negotiated further immediately prior to COFI and, if approved by COFI, would provide a basis for more precise statements of the kinds of problems addressed by terms such as "flag of convenience".

28. The Commission agreed that the term "flag of convenience" could be used until COFI had decided on the definition and use of the appropriate terminology resulting from the negotiation of the IPOA on IUU Fishing, noting that discussion on this subject should be postponed until the next IOTC Session.

Progress on arrangements to deal with the implications of catches by Taiwan Province of China on the scientific assessment of tuna stocks

29. The FAO Legal Adviser reported that, while there had been some further discussions, no significant progress had been made since the Fourth Session of IOTC. Nonetheless, the possibility set out in paragraph 33 of the Fourth Session, stating that the People's Republic of China had accepted that a non-governmental organization representing the fishing interests of Taiwan Province of China be invited to participate in IOTC meetings continued to be the basis for further consideration of the issue. The Commission recognized that the participation in IOTC technical activities of scientists from Taiwan Province of China had been accepted by China.

30. The Commission stressed the importance attached to further work on this issue. The Commission requested the FAO Legal Adviser to continue to explore practical solutions.

Establishment of a control and inspection scheme

31. The European Community provided an outline for a control and inspection scheme for IOTC (IOTC/00/07). The Commission recognized that this scheme could not be properly addressed in the time available and it was agreed that an intersessional meeting would be held in Japan during next March or towards the middle of 2001 to study the content and implementation of such a scheme. The Japanese delegation, in extending the invitation, confirmed that Japan would cover any additional costs to the Secretariat from holding this meeting. France indicated that if would be useful to build on the experience acquired by other regional fishery bodies and referred notably to bilateral agreement mechanisms between Contracting Parties for monitoring and inspection and possibly the use of on-board observers.

32. The Commission noted that the date of the meeting would be conveyed to Members after consultation by the host government with relevant Members.

Proposal for a technical meeting on the legal aspects of MCS

33. The Secretariat reported on contacts that had been held with the FAO Legal Office and the FishCode project concerning a proposal to organize a meeting to examine the provisions needed in the legislation of IOTC Members to respond to current and future international instruments, including the UN Fish Stocks Agreement, the Compliance Agreement and resolutions adopted by

the Commission itself. The Commission confirmed its interest in such an activity and requested the Secretariat to initiate preparatory studies and to seek funding. A final decision on holding a meeting would be taken at the next Session.

PROGRESS REPORT OF THE SECRETARIAT (IOTC/00/03)

34. The Secretary presented this Agenda item. This report primarily concerns administrative issues as technical matters will be dealt with through the Scientific Committee report.

Status of accessions to the Commission

35. The Sultanate of Oman acceded to the Commission in mid-2000, bringing the number of contracting parties to eighteen. A number of countries entered into contact with the Secretariat during the year to enquire on the requirements to be met to accede to the Agreement, including the Islamic Republic of Iran, Vanuatu, Belize, Panama and the Federal Islamic Republic of Comores.

Staff issues

36. The Data Clerk resigned and a replacement was recruited. Based on experience, the title was changed to Publications Assistant and the Terms of Reference modified accordingly. The Computer Systems Manager seconded by the Seychelles Fishing Authority was also transferred to other responsibilities and a replacement has been recruited.

Core activities

Organization of IOTC meetings

37. Four working parties met in Seychelles during the intersessional period and their reports were addressed to the Scientific Committee. The Scientific Committee and Commission meetings were organised in Victoria as scheduled.

Diffusion of information

38. The information and data diffusion activities of the Secretariat were implemented as scheduled, in print, through the Internet and direct communication. The IOTC Internet Web site in particular has been developed extensively in both English and French and contains links to all documents and public domain data sets diffused by the Secretariat.

Status of data and of databases

39. The scientific database was completely re-designed, using an innovative approach that permits storage and retrieval of heterogeneous data sets. A major advantage is that this avoids the need to modify the data to fit pre-set aggregates, a process that involves analysis that may result in the loss of information.

Field activities

Sampling programmes

40. Staff missions were organised to Thailand, Malaysia and Mauritius to address critical data issues and organise sampling schemes. The Commission instructed the Secretariat to provide a summary report on sampling scheme at the next meeting. Another mission was made to Indonesia to discuss possibilities of accession, either as full Member or as Cooperating Non-contracting Party. Discussions were also initiated to extend the BPPL/CSIRO sampling scheme to other harbours with support from IOTC.

Cooperation with other tuna bodies

41. IOTC introduced its new database system and concept respectively to CCSBT and ICCAT through staff missions funded by the agencies concerned.

Staff missions

Attendance at external meetings

42. Secretariat staff were involved in eight meetings involving coordination between regional fishery bodies or dealing with subjects directly relevant to the Commission's interests. Activities were pursued with the *Institut de Recherche pour le Développement* (IRD – France) in developing a software suite for logbook and port sampling data entry, analysis and reporting for both surface and longline fisheries.

43. The Commission requested additional information regarding progress on trade-related and other measures to reduce FOC vessels operating in the Indian Ocean. The Secretariat indicated that background research has addressed collecting information on landings and destination of exported fish to assess the extent of the problem. Most import information would have to come from customs (Import/Export) authorities. Some countries, like Japan, have good systems in place for large, sashimi-quality tunas, but similar information for smaller tunas would be hard to obtain in most countries. It is also reported that up to 60% of longline catches might be transhipped on the high seas and this would create difficulties for obtaining information. To date, few countries have given comprehensive information on foreign tuna-fishing vessels licensed by them or calling in their ports. The sampling programmes in Penang and Phuket are providing detailed information for some of these vessels.

44. The Commission requested the Secretariat to provide more information about the use of the $25,000 assigned to the tagging programme. The Secretariat indicated that two experts on tagging were invited to the Working Party on Tagging, and provided valuable assistance. Some of the planned expenditures (*e.g.* missions to Coastal Countries), have not taken place yet, in part because of the delayed arrival in Seychelles of the Chairperson of the Working Party on Tagging.

Discussion on a possible modification of rules for submitting documents

45. Several Delegations expressed their concern about proposed resolutions being made available to the Commission during the sessions themselves, stating that it is necessary for them to consult with their national agencies prior to taking decisions on certain proposals.

The Commission agreed to request the Secretariat to provide, for the next Session, a draft amendment of the Rules of Procedure calling for submission of documents for consideration by the Commission through the Secretariat. This draft should consider the following elements:

i. Documents with proposed resolutions should be submitted to the Secretariat in time for transmission to Members together with the proposed agenda incorporating changes proposed by Members, thirty days before the Commission session.

ii. It is recognized that some proposed resolutions would only be available after the Scientific Committee meeting. In these cases, the proposals must be available the first day of the Commission session.

iii. The possibility of holding the Scientific Committee several weeks in advance to the Commission meeting should be considered, as this would provide time for the Delegates to receive in advance all the documents and proposals that will be discussed by the Commission. In that case, the Scientific Committee could be held immediately following working party meetings.

REPORT OF THE SCIENTIFIC COMMITTEE

46. Mr. Renaud Pianet, Chairperson of the Scientific Committee, presented the report of the Third Session (Document IOTC/00/04, Appendix XII).

Issues arising from the Progress Report of the Secretariat

47. In response to concerns raised regarding the data from Taiwan Province of China, the Secretariat indicated that data are complete for nominal catches until 1999 and catch and effort until 1998. However, it has not been possible to obtain size-frequency data of catches from large longline vessels for years subsequent to 1989. The Secretariat is now obtaining information on landings of small vessels through the IOTC sampling programmes in some of the ports from which this fleet operates. As the flags these vessels are flying vary, these data are recorded under the NEI (Not Elsewhere Included) category. This situation might change, however, as a large number of these small vessels are now under Indonesian flag and Indonesia will be responsible for reporting on their activities.

Issues arising from the Report of the Permanent Working Party on Data Collection and Statistics

48. The Committee noted the improvement in statistical reporting as 62% of the 1999 catch was reported. In previous years, a large proportion of the catch had to be estimated. However, it also stressed the need to improve upon the timeliness and completeness of the data submissions by Contracting and Cooperating parties.

49. Concerns were expressed about the low coverage of size-frequency data from large longline vessels. It was indicated that the main problem in this area was collection of size-frequency data from distant-water (large vessels) fleets. These fleets only call to port once or twice a year and are thought to tranship up to 60% of their catch at sea. In many cases, the same vessel may also fish in more than one ocean during one trip. Size-frequency sampling on these boats is performed by the crew, and the sampling rates are very low. The Scientific Committee strongly recommended the implementation of sampling schemes by countries for which these data are not available, in particular those having small-scale and longline fisheries.

50. The Commission endorsed the recommendation that the Secretariat should continue its efforts to recover historical data and to expand the IOTC sampling schemes to ports yet not covered.

Issues arising from the Report of the Working Party on Tropical Tunas

51. The Working Party on Tropical Tunas noted a general improvement in the data situation, although significant gaps are still present. The lack of reliable data still limited the possibilities of conducting rigorous stock assessments for yellowfin tunas. However, after reviewing a number of stock status indicators for the species, the WPTT considered that total catches of yellowfin tuna appear to have reached a plateau, and may now be at or approaching MSY for the current fishing pattern. The recent trend of increased fishing pressure on juvenile yellowfin from purse-seine fishery on drifting objects may decrease the sustainable yield of the stock.

52. Recent trends of status indicators for skipjack tuna did not suggest reasons for immediate concern. As it was the case last year, the status of bigeye tuna should be considered uncertain but of concern.

53. The Committee noted that participation of scientists from developing countries in the WPTT was still very low. Several reasons for this situation were discussed, of which lack of funds seems to be the major one. It was suggested that holding several working party meetings together might reduce some of the costs, although this represents a considerable burden for the Secretariat. It was also requested that the final schedule of meetings be circulated to all liaison officers as soon as arrangements are finalized, to facilitate planning by national scientists.

54. In response to a question about the contribution of the different forms of fishing on the mortality of juvenile and adult bigeye tunas, the Chairman of the Scientific Committee indicated that data deficiencies precluded a rigorous evaluation of this issue. However, from the analysis of available data, there are few doubts that the average weight of bigeye tuna is below the level that would provide the maximum yield per recruit.

55. Regarding the effort of the fleets operating in the Indian Ocean, the Chairman of the Scientific Committee noted that, although the number of purse seine vessels has stabilised, their efficiency has increased and effort has remained relatively stable over recent years. However, it was noted that the number of small longliners has increased in recent years. Fishing effort directed to individual species is hard to estimate, because the target species varies seasonally and in relation to market prices.

Issues arising from the Report of the Working Party on Tagging

56. A proposal was presented by the Scientific Committee for a five-year tagging programme, starting in 2002, covering a broad range of sizes of the three main tropical tuna species. This programme would be implemented over the whole Indian Ocean, using different tagging platforms. The total budget proposed, assessed at nearly US$ 19 million, includes costing for all the elements needed in the programme. The two main components of this programme are: 1) the rental cost of tagging vessels (62%); and 2) the cost of scientists and technicians in charge of the programme (16 %). This budget could be substantially reduced by contributions in kind from Contracting and Cooperating parties. These could include the provision of vessels, of scientists and technicians and of the publicity and support needed in each Indian Ocean coastal country for tag recovery. The Commission recognized the need for a tagging programme as this is integral part of a stock assessment. In conjunction with the tagging programme, the Commission also recognized that it was still essential to ensure the collection of quality fishery statistics and that these were of primary importance in any stock assessment. The Chairman of the Scientific Committee indicated that the planned tagging techniques are well known and widely accepted and that the proposed programme follows the model of the successful tagging programmes that provided valuable information in the western Pacific.

57. A small group studied the means of implementing Phase I of this programme. It was agreed that this phase would concentrate on tagging from non-conventional platforms to establish the feasibility of various approaches, notably from coastal countries and through sport fishing. Publicity would be initiated in countries where tag returns are expected. Training of technicians and scientists would be one of the expected benefits.

58. It was suggested that this programme could be initiated using unspent funds (US$134,000) remaining from IPTP, on the understanding that the European Community and Japan might provide additional funding in 2002. Coastal countries are also expected to contribute in kind through the provision of research vessels, technicians, scientists and support for local publicity and tag retrieval activities.

59. It was suggested by India that, to ensure the success of the tagging programme, the following steps be taken:

i. The persons selected to lead the tagging programme would first take up the work of organizing a “training for trainers”, i.e. scientists from the countries in which tagging is proposed would be trained to run this programme.

ii. The trained scientists would then undertake the work of tagging on behalf of IOTC and funded through the IOTC in their respective areas of operation.

iii. This training programme would be completed, through IOTC funding, before the substantive programme of tagging is taken up in 2001-2002.

60. India agrees to take up this programme subject to the above being agreed and implemented.

61. The Commission supported the general concept of the tagging programme and agreed to proceed with the implementation of its Phase 1, using the unspent funds from IPTP to initiate the process. The Commission also agreed that the Secretariat and some parties should seek extra-budgetary funding for the remainder of the programme.

Report of the Working Party on Billfish

62. The Working Party on Billfish noted significant problems in data, resulting from poor species identification, high discard rates and the large artisanal component of the fishery. The lack of data and inconsistent results in standardised CPUEs precluded attempts at any rigorous stock assessment, but rapid increases in catches, in particular of swordfish in the western Indian Ocean, dictate close monitoring of these species.

63. Australia will be hosting the forthcoming International Symposium on Billfish in Cairns, Australia, in August 2001, and invited the delegates to convey this information to interested scientists in their respective countries.

Issues arising from the Report of the Mode of Functioning of the Working Parties

64. The Scientific Committee discussed several ways in which the efficiency of the Working Parties could be improved and presented several proposals including the establishment of an *ad hoc* Working Party on Methods, the preparation of an Executive Summary report by the Working Parties, as well as changes in the way the meetings are conducted. These proposals are to be taken into account when planning future meetings.

65. The Commission supported the suggestions made by Scientific Committee regarding the mode of functioning of working parties in the future. Extending the duration of the sessions might have budgetary implications that must be reviewed in the appropriate section.

Schedule for meetings of the Working Parties

66. The Commission noted the proposed schedule of Working Party meetings in the coming year. It was suggested that combining several Working Party meetings might result in savings for participants. This might only be possible for the Working Party on Tropical Tunas and on Tagging, however, as it is anticipated that the other meetings might be held in different countries.

Advice of the Scientific Committee on the areas, periods and conditions for a moratorium on fishing with purse seines on floating objects

67. The Commission expressed concern regarding the compliance of management measures, due to difficulties in ensuring the implementation of a moratorium by non-contracting parties. In this context, the Commission noted that at least nine non-reporting purse seiners flying flags of convenience were operating in the IOTC area of competence. The Commission further noted the absolute need for measures leading to a full compliance of the moratorium by all fleets concerned. In the absence of a cap on the total fishing capacity, the Commission decided a moratorium could not be implemented.

68. Possible management measures related to this point were discussed under Agenda Item 5, Matters Arising from the Fourth Session.

Advice of the Scientific Committee on the optimum fishing capacity of the fleet.

69. The Commission noted the progress achieved by the Secretariat in listing tuna fishing vessels operating in the Indian Ocean. Nevertheless, the Commission agreed that the information available was still incomplete and did not permit a reliable stock assessment to be effected, and that further research was needed to assess the actual fishing capacity of the fleets.

70. The Commission also noted that, while the number of industrial purse seiners and freezer longliners seemed to have remained more or less stable over the last few years, this was not the case with small longliners targeting fresh tunas which have increased dramatically in numbers over the same period. Nevertheless, the Commission further noted the high increase in fishing effort on juveniles and adults of bigeye tuna exerted by purse seiners and freezer longliners, respectively, through increases in efficiency and changes in targeting.

71. Japan reported a reduction in the number of Japanese large-scale tuna longline fishing-vessels by 20% by scrapping those vessels in accordance with the FAO Plan of Action on Fishing Capacity.

72. Japan presented a proposed resolution concerning an action plan to ensure the effectiveness of the conservation programme for bigeye tuna in the IOTC Area of Competence (draft provided at Appendix XIII). The proposal received wide support, however, as several delegations wished to further consider the details of the proposal, the Commission agreed to refer the draft resolution to the intersessional meeting on Inspection and Control and then to revisit this important issue at the Sixth Session.

73. Japan presented a proposed resolution to limit or reduce the fishing capacity of large-scale tuna vessels fishing for bigeye tuna. However, it was not widely supported. Japan expressed deep disappointment that the Commission did not take responsible action in a timely manner for the management of bigeye tuna.

Report on the current status of a species

74. The Commission endorsed the Committee's request that the Secretariat prepare reports that would be updated annually or as information accrued on the current status of the species under the responsibility of IOTC. The Commission noted a significant synergy between this activity and the FAO initiatives in a global fisheries information system (FIGIS) and the FAO IPOA on Status and Trends Reporting.

Research on predation of longline caught fish

75. The Commission noted the progress on this issue but stressed the need to continue on-going research to obtain more complete data on this subject. Possible competition for food between tunas and some cetaceans was also noted, but it was noted that this was a different issue from the one of predation on tuna caught on longlines. The Commission noted the presentation made by Japan regarding the stomach contents of whales although some delegations pointed out that it did not have any direct relevance in Indian Ocean tuna fisheries.

76. The Commission adopted a resolution on a survey of predation of longline caught fish as listed in Appendix XIV.

Transfer of technology and training activities

77. The discussions on training initiated in the Scientific Committee were further considered under Agenda Item 5 and are reported there.

Southeast boundary of the IOTC Convention Area

78. As undertaken at the Fourth Session of the Commission, Australia provided evidence to the Scientific Committee showing that a wedge of cold water south of Tasmania most probably prevented movement of tropical tuna stocks between the Indian Ocean and Pacific. The Scientific Committee recognized that while the position of the boundary would make no difference in the stock assessment for tuna species, it may be of concern in management situations. Australia recalled the conclusion of the development of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean on 5 September 2000 at Hawaii. The Area of Competence of the two Conventions, between 141°E and 150°E, now overlaps.

79. Australia stressed that, upon entry into force of the new Convention, IOTC, pursuant to Article XV, and the new Regional Fisheries Management Organization, pursuant to Article 22 of the new Convention, would be obligated to specifically address the overlapping Area of Competence. Australia looked forward to the IOTC and the new body developing straightforward

consultations, cooperative and collaborative arrangements for the area of overlap to minimise duplication and avoid conflict over fishing activities in the area.

80. Japan expressed its reservation regarding any change to the southeast boundary of the IOTC Convention Area, noting that this would require a change in the IOTC Agreement.

81. The European Community expressed its concern about the position of both Australia and MHLC in that they should have acknowledge the established boundary of IOTC, and it pointed out the irrelevance of changing the boundary to 141°E.

82. The Commission recalled its decision from the Fourth Session to the effect that the position of the boundary should remain as the Agreement has stipulated at 150°E.

Voluntary limits of world-wide tuna catches

83. The Commission welcomed and supported the measures implemented by the World Tuna Purse Seine Organization leading to a reduction of the catches of skipjack tuna. However, it also noted that implementation of those measures might have consequences for future data collection and stock assessment activities.

RELATIONSHIP WITH OTHER BODIES

CCSBT

84. CCSBT presented a report to the Commission on its activities, noting that processes had been put in place, including the appointment independent Chairs to the Stock Assessment Group and Scientific Committee and a Scientific Advisory Panel comprising external experts, to assist in reducing the areas of uncertainty the stock assessments. CCSBT informed on the progress regarding the Trade Information Scheme, implemented in June 2000, and the expected accession of the Republic of Korea to its convention next year. CCSBT also informed that new fisheries and trade databases have been set-up with the help of the IOTC and that a new data manager is to be appointed soon.

85. Japan and Australia expressed their full commitment to achieve the aim of the IOTC and CCSBT conventions and fully supported the cooperation between both institutions.

ICCAT

86. The representative of ICCAT summarized the latest developments in this organization, including the adoption of catch limits on Atlantic bluefin tuna and swordfish in the southern Atlantic. ICCAT is also holding an inter-sessional meeting on an inspection and control scheme during 2001. The Commission was informed of a list of large-scale longline vessels believed to be engaged in illegal, unregulated and unreported fishing activities in the ICCAT Convention Area and other areas.

Multilateral High Level Conference (MHLC)

87. Japan expressed its disagreement regarding provisions of this Convention, noting the following issues 1) a non-democratic decision-making procedures that ensures no protection of minority opinion; 2) an illegal inspection and control scheme where any vessel can be prosecuted beyond the rights of the flag state; 3) excessive data collection obligations; 4) establishment of a basis for unilateral legal actions and 5) unsatisfactory definition of the Convention Area that overlaps that of IOTC. Japan further noted that Resolution 20/10/00, establishing the Convention, was adopted despite abstention by 44 nations.

88. The European Community also expressed its dissatisfaction with this process, indicating that they were excluded from the negotiations and only accorded observer status.

89. China also expressed its dissatisfaction with the MHLC and pointed out that that it is too early to establish relations with this organization as it is not yet established.

90. Recognizing Australia's valuable fisheries for highly migratory species on its eastern seaboard and the importance of arrangements to conserve and manage these stocks, Australia welcomed the conclusion of the MHLC and adoption of the new regime for the western and central Pacific Ocean. However, Australia remained sensitive to issues associated with the new Convention and encouraged all Parties with an interest to resolve any remaining differences. Australia requested that IOTC review the arrangements for the area from 141°E and 150°E upon entry into force of the new Convention, in collaboration with the new Commission for the Western and Central Pacific.

Coordinating Mechanism of Secretariats of Tuna Agencies and Programmes

91. An informal meeting of tuna commission secretariats and programmes to formulate a mechanism for the exchange of information was held in Nouméa, New Caledonia, involving IATTC, IOTC, FFA (the South Pacific Forum Fisheries Agency) and SPC. The Secretariat believes that this process has strengthened the relationships between tuna bodies. As a result, these bodies now inform each other of management measures they are implementing, a process which helps in forecasting fleet movements in response to management actions.

92. In the context of mutual technical support, the Working Group on Tropical Tuna benefited from the visit of a scientist from IATTC who provided important insights on the issues discussed. In addition, IOTC was invited to advise ICCAT on their database development and CCSBT to install a database system similar to the one used by the Secretariat, in both cases at the cost of these organizations.

93. Control of FOC vessels remains the major constraint to management of tuna fisheries and it was agreed that it was necessary to share vessel registry information between agencies and with FAO in order to track the movement of vessels and changes of flag and other identifiers. Discussions were also held on status and trends reporting, as this subject will be raised in an FAO International Plan of Action, the success of which will depend largely on active collaboration of regional fishery bodies.

94. The benefits of sharing vessel registry information are various, the most significant of which are that it would allow 1) estimates of fishing capacity, 2) tracking of individual vessels, even when they move between oceans, and 3) support the FAO Compliance Agreement that requests countries to provide this information. Because of this, the Secretariat asked the Commission permission to share vessel registry information with other agencies.

95. The Commission agreed that the vessel registry information should be shared with other Commissions and FAO and is useful to enforce management measures.

PROGRAMME OF WORK AND BUDGET FOR 2001

96. The Programme of Work and Budget was presented by the Secretariat. It assumes that no substantial new activities will be initiated, the emphasis being on consolidation of current programmes.

97. One Scientific Committee and one Commission session will be organised in 2001. Budgeting provision is made for four working parties meeting in the next year in Seychelles, the main incidence on the Secretariat being in staff time, involving organization, meeting support, communications, rental of meeting rooms and reporting. Participants to species working parties will be provided with data sets and basic summary analyses prior to the meetings.

98. Sampling schemes are now functioning in Thailand and Malaysia. Contacts have been established to conduct sampling in Indonesia and increased landings in Sri Lanka might dictate the need for sampling there. Staff missions will be organized to coastal countries to assess the

need for and to provide assistance in statistical sampling. The Secretariat will provide assistance to scientists participating in the survey of predation of longline-caught fish. An *ad-hoc* correspondence working group has been established and will continue to operate during 2001.

99. The work of improving and maintaining statistical databases is an on-going task. Automatic error-checking and verification procedures are being established to improve data quality. In-depth data revisions for each country and basic trend analyses will be used to identify data inconsistencies.

100. Development of software for entry, verification, analysis and reporting of data obtained from sampling schemes is proceeding in the context of the cooperative arrangement between the Secretariat and IRD. Software development will also continue on the Secretariat databases and for the sampling schemes.

101. The Secretariat is collecting the most commonly used programmes for data analysis in order to make them readily available to scientists interested in the analysis of their own data. A repository of environmental data on the Indian Ocean will provide scientists of the region with access to environmental information that might be useful in their research on species of interest to IOTC.

102. An Internet Web site provides information on the objectives, statutes, and membership of the Commission, the capabilities, data holdings, publications and areas of action of the Secretariat, scheduled meetings and activities, etc., as well as information on the Seychelles. The public domain data and publications of the Secretariat are available in electronic format through the Web site or through requests addressed to the Secretariat.

103. Reports of Commission, Scientific Committee and WP meetings will be produced and distributed in both Commission languages. The papers submitted to the Working Parties will be published and distributed shortly. The Data Summary on catches on tuna and tuna-like species is published annually. The Indian Ocean Tuna News will be published quarterly. An annotated bibliography on tunas and tuna-like species will be distributed in electronic format and will be converted into a searchable database, accessible through the Web site.

104. In 2001, the Secretariat is expected to participate in the meeting of Secretariats of Regional Fishery Bodies, the FAO IPOAs on IUU fishing and on status and trends reporting, COFI and the CWP. Cooperation will continue with the other fishery Commissions, in particular those which deal with the same stocks, such as CCSBT, and those which have boundaries which abut with the IOTC Area of Competence, such as ICCAT and SPC. A Coordinating Meeting of Secretariats of Tuna RFBs and Programmes is planned in conjunction with COFI.

105. The Secretariat indicated that, as convened in the Fourth Session, no funding had been requested for tagging in the regular programme budget. Similarly, no budgetary provision had been made for the training activities proposed during the Session and the cost of organising Working Party meetings away from Seychelles as was proposed for three meetings in 2001 had not been assessed. If support was provided by the hosting country, however, these costs might not be significantly higher than the sum budgeted.

106. The Commission approved the programme of work for 2001 and adopted the budget as listed in Appendix XV. The scheme of contributions per country are listed in Appendix XVI.

107. Eritrea indicated its disagreement with the way the calculation of the contributions are assessed as they represent a heavy burden on countries with negligible catches. It was agreed that this be included as an item in the agenda for the next Session.

FINANCIAL STATEMENT

108. Outstanding contributions stand at US$486,734, about 45 % of the total assessed for 2000. Three Contracting Parties now have contributions that are in arrears of two years. There is a

possible discrepancy in the contribution from Seychelles as it has not been possible to trace the origin of an overpayment of US$24,134.

109. The FAO computerised system does not currently permit direct access from Seychelles. The last financial statement received gives expenditure in 2000 as $671,763, but this does not include un-liquidated commitments.

110. When all commitments are liquidated at the end of the year, expenditure is expected to be close to the budgeted figure, although some savings are expected against consultancies and contracts due to delayed implementation in the tagging pilot studies and in some sampling schemes.

111. Assuming the major portion of outstanding contributions is received without further delay, the funds in hand should suffice to permit the Secretariat to continue functioning normally in 2001. The consistently late payment of contributions remains preoccupying. This situation is unlikely to improve as long as the Commission meets late in the year and calls for contributions do not get to Members until well into the following year.

112. Residual funds from IPTP have still not been transferred to IOTC. The final sum has been assessed at US$134,560.

113. The representative of FAO informed the Commission that the FAO financial system is going through significant reorganisation to facilitate the decentralisation process. In this regard, direct access to the FAO financial system, either through dedicated SITA lines or the Internet, is presently being evaluated. The intention is to provide a quick and direct access to decentralised units and enable them to receive updated information on financial expenditures. The representative of FAO assured the Commission that the Fisheries Department will provide all possible support to the Secretariat of the Commission to receive information on the financial status of the Commission on a regular basis.

114. In response to a question whether it would be possible to achieve financial autonomy from FAO, the FAO Legal Adviser drew attention to certain provisions of the IOTC Agreement and the Financial Rules of the Commission. He mentioned in particular Article VI.7 and Article XIII.7 of the agreement, and Financial regulation III.8 and VI.1 and 2, as well as drawing attention to Part R of the Basic Texts of FAO (Principles and Procedures which should govern Conventions and Agreements Concluded under Articles XIV and XV, And Commissions and Committees Established Under Article VI of the Constitution). These provisions made it difficult to achieve complete autonomy from FAO.

115. The Commission requested that a more detailed study be prepared for the next Session of the Commission to examine the extent to which financial control by the Secretariat and independent audit were possible under the present provisions, and what amendments might be necessary in order to achieve this. It was agreed that this would be discussed in the next Session of the Commission.

ELECTION OF THE SECRETARY

116. The Commission reviewed the application of eighteen candidates for the position of the Executive Secretary. Six prominent and highly qualified candidates were pre-selected. From them, the Commission unanimously recommended to the Director-General of FAO the appointment of Mr. David Ardill as the Executive Secretary of the Indian Ocean Tuna Commission for a period of three years starting January 2001.

ELECTION OF THE CHAIRPERSON AND VICE-CHAIRPERSONS

117. The Commission elected by consensus Ms Nita Chowdhury, from India, and Mr Masayuki Komatsu, from Japan, and Mr Emilio Mastracchio, from the European Community, to serve as Chairperson and Vice-Chairpersons for the next biennium.

DATE AND PLACE OF THE FOURTH SESSION OF THE SCIENTIFIC COMMITTEE AND THE SIXTH SESSION OF THE COMMISSION

118. The Commission decided that the Fourth Session of the Scientific Committee will take place from December 4-7, 2001 in Seychelles and that the Sixth Session of the IOTC will be held on December 10-14, 2001.

ADOPTION OF THE REPORT

119. The report of the Fifth Session of the Indian Ocean Tuna Commission was adopted on 15 December 2000.

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APPENDIX II - OPENING REMARKS BY THE VICE-CHAIRMAN OF THE COMMISSION AND CHAIRMAN OF THE FIFTH SESSION, MR M. KOMATSU

Excellencies, distinguished delegates, colleagues and friends,

I welcome you to the fifth session of the IOTC. I would like, on your behalf, to thank our hosts, Seychelles for providing meeting facilities. In particular we wish to express our gratitude to Dr. Ardill and his colleagues for their efficiency.

Distinguished delegates,

Let me begin by looking at the world tuna fisheries situation. Worldwide tuna catches began to rapidly increase in the early 1980s and reached approximately 3.5 million metric ton in 1998, almost doubling from the early 1980s. The main increases are for tropical tunas such as skipjack, yellowfin and bigeye, caused by excess fishing capacity of purse-seiners. This excessive fishing capacity of purse-seine fleets has created several problems at national, regional and global level. These include drastic decline of price for skipjack in the world market caused by over-supply, reduction of average size of bigeye, increase of incidental catch of juvenile bigeye tuna and possible reduction of yellowfin tuna and adult bigeye. It is abundantly clear that if catches by tuna purse-seine fleets continue at such a high level, stocks of major tropical tuna are likely to become overexploited, leading to fishery unsustainability in economic viability terms.

In this regard, I wish to recall you that this session of the IOTC is requested to consider the limitation of the capacity of large-scale tuna vessels at an appropriate level. This subject is not an easy task, but it is not impossible. We have an obligation to fulfil to ensure the conservation of tuna and tuna-like species in the Indian Ocean and promote their optimum utilization, and the sustainable development of the fisheries. I believe we can fulfil our obligation if we continue to work pragmatically and in a spirit of cooperation.

Distinguished delegates,

There are number of issues to be addressed during this session. Among other things, the difficult issues are, I believe, combating IUU fishing activities, poor data collection and statistics and a control and inspection scheme for IOTC. These are highly inter-related each other.

I am very concerned that IUU fishing activities would lead to increased uncertainty in making responsible fishery management decision and in assessing the status of tuna stocks in the IOTC area. It is essential to ensure that all the data concerning fishing activities are available, covering the full range of these activities in the convention area. In this regard, sampling scheme in the coastal states should be developed in a responsible manner so as not that their fishing activities are regarded as IUU fishery. It is also important to consider a some mechanism to ensure the availability of long-line fishery data from non-contracting party in view of the importance of its fisheries.

In closely tied to these issues, a scheme for control and inspection would constitute the underpinning necessary for effective and responsible resource management. I hope that substantial progress will be made to develop the idea of this scheme during the session.

I hope that in the coming days we work creatively and jointly to resolve a number of important issues.

APPENDIX III - OPENING REMARKS BY MR. Z. KARNICKI, DIRECTOR OF FISHERY POLICY AND PLANNING DIVISION, FISHERIES DEPARTMENT OF FAO

It is my pleasure to welcome you on behalf of the Director-General of FAO, Mr. J. Diouf and convey to you his warm greetings as well as those of Mr. Ichiro Nomura, Assistant Director-General of the Fisheries Department. They both wish you a very successful session.

At the outset, I should like also to express our appreciation to the Government of the Seychelles for hosting the Secretariat of the Commission and for providing its continuous support.

The main task of the FAO Fisheries Department is to strengthen the governance of global fisheries resources in order to ensure responsible fisheries and availability of fish as a healthy food and culinary delight to the present and future generations.

During the last decade, the global community was considerably successful in the elaboration of a legal framework for responsible fisheries. Unfortunately, the implementation of these good initiatives is not at the level we would expect. First of all, legally binding documents dealing with highly migratory fish species like the UN Stock Agreement and the FAO Compliance Agreement have not been ratified by a sufficient number of States to allow them to enter into legal force. Therefore, at this point I would like to urge all IOTC Members to ratify these Agreements at the earliest possible date. The entry into force of these Agreements would also facilitate the work of your Commission.

The growing demand for fish and fishery products result in increased competition for global fishery resources which, in a number of cases, are over-fished and thus less and less available. In such situations competition is becoming, in extreme cases, unscrupulous and, in recent years, we observe an increasing occurrence of illegal unregulated or unreported fishing. This phenomenon, if not curtailed, may create significant damage to global fish resources and their sustainability. Although the greater part of IUU fishing is happening in the EEZs it is most visible on the high seas. Therefore, the regional fisheries organizations, in particular those dealing with tuna, have initiated concrete steps to combat IUU fishing, independently of FAO-led processes, to develop an IOPA. Regional action to combat IUU fishing, in terms of catch documentation schemes and control over landing of fish, have been adopted, individually or collectively by at least six organisations. Moreover, six other organizations are considering taking similar action.

The problem of IUU fishing has been addressed to FAO by the Ministerial Meeting on Fisheries held in Rome in 1999. Following this the Government of Australia in collaboration with FAO organized an Expert Consultation on IUU Fishing which was held in Sydney in May 2000. During this Consultation the experts, including also those representing regional fishery bodies, prepared a preliminary Draft to combat illegal, unregulated and unreported fishing. This preliminary Draft was then taken as a starting point at the FAO Technical Consultation on IUU Fishing held in FAO Headquarters from 2-6 October 2000. This Consultation, however, due to the complexity of the issue, was not able to complete the negotiation of the text of the International Plan of Action (IOPA) and a Second Consultation on IUU Fishing is scheduled to take place in February 2001 in Rome immediately after the second meeting of the FAO and non-FAO Regional Fishery Bodies and just before the 24th Session of the FAO Committee on Fisheries.

It should be noted that, in the elaboration of the International Plan of Action on IUU Fishing, the representatives of regional fishery bodies, like IOTC, took a very active participation and measures used by those bodies to prevent IUU fishing, in particular, measures related to trade as well as port State control, were evaluated and included into the proposed draft International Plan of Action. I strongly believe that, apart from national action, concerted action by regional fishery bodies will be the most efficient way to address and effectively curtail IUU fishing on the high seas.

The International Plan of Action for the Management of Fishing Capacity agreed at the 23rd Session of the FAO Committee on Fisheries in 1999 calls upon States to proceed, by the end of 2000, with a preliminary assessment of the fishing capacity deployed at the national level in relation to all the fleets of principal fisheries and to up-date this assessment periodically. States should also proceed by the end of 2001 with the systematic identification of national fisheries and fleets requiring urgent measures. In this context, FAO noted with satisfaction that some members of IOTC have already taken appropriate steps to adjust the fishing capacity to the resources available. However, more work in this area by other States is still required.

FAO is also expecting from its Members a list of all fishing vessels authorized by them to fish on the high seas, in order to establish, by the end of 2000, an "International Record of Fishing Vessels Operating on the High Seas". Unfortunately, progress in provision of data is slow and I wish to urge the Members of IOTC to fulfil the requirements of the FAO Compliance Agreement as well as the International Plan of Action on the Management of Fishing Capacity at their earliest opportunity.

Subsidies in fisheries are considered by some as a contributing factor to over-investment in fisheries, a threat to sustainability of the resources and a cause for distortion of international trade in fish and fishery products. For this reason, FAO has received a mandate from its Committee on Fisheries to compile available information on fisheries subsidies at the global level and its possible impact on sustainability and international trade. In fulfilling this mandate, FAO has organized an Expert Consultation on Economic Incentives and Responsible Fisheries, which was held in Rome earlier this month. It becomes clear that subsidies in fisheries, although globally substantial, play both positive and negative roles as well. It is a very complex issue and it was considered that subsidies were only one among other elements, which may, in a negative way, contribute to unsustainability of fishery resources and create a distortion in international trade. Despite the fact that a number of institutions had been involved, like the World Bank and OECD in the collection of data on subsidies in the fisheries sector, it was visible that information available is still limited and probably not sufficient for firm evaluation of the impact that subsidies are making on the fisheries sector. The Report of this Consultation will be submitted to the 24th Session of COFI for its consideration and further guidance.

Another important issue, which will be discussed first at the 2nd Meeting of FAO and non-FAO Regional Fishery Bodies and later by the 24th session of COFI, will be the improvement of fisheries status and trends reporting. In this connection, the FAO Advisory Committee on Fishery Research (ACFR) has suggested to prepare a suitable international plan of action as a voluntary instrument specifying actions and procedures to be undertaken by States both individually and through regional fishery bodies, as well as FAO, to improve fisheries status and trends reporting. Such improvements are required in support of more effective fisheries policy-making and management, better monitoring of environmental impacts on fisheries and the impact of fisheries on the ecosystem.

As it can be seen, there are a number of issues in global fisheries, which need close collaboration between FAO and regional fisheries bodies. I am very pleased and satisfied that our cooperation with these bodies, and particularly with IOTC, is very good and FAO is looking forward to continuing this cooperation even in a more effective way.

On behalf of the Food and Agriculture Organization of the United Nations, I wish you a successful Session.

APPENDIX IV - OPENING REMARKS BY MR. D. ERNESTA, MINISTER FOR AGRICULTURE AND MARINE RESOURCES OF THE SEYCHELLES

Ministers
Excellencies,
Mr. Chairman,
Representative of the FAO,
Distinguished Delegates
Ladies & Gentlemen

Delegates, you who are accustomed to technical jargons, please do bear with me as I address this august gathering in terms that are not so esoteric.

Ladies and Gentlemen,

The fifth Session of the Indian Ocean Tuna Commission is taking place against the backdrop of a series of interesting international developments. These are mainly;

Vagaries in the international tuna market, which has led to a significant, drop in the price of some species;

Controversies surrounding some food items which is forcing us to look at food security in new lights.

The fact that you have congregated in Seychelles at this juncture to discuss an issue of international importance highlights the country's emergence as an important stakeholder in international tuna fisheries.

Actually, the establishment of IOTC in Victoria, itself a feat of economic diplomacy which is the new thrust of Seychelles' foreign policy, has been instrumental in Seychelles' rise to this prestigious international status. The hosting of the commission in Seychelles, along with the decision by international food giant Heinz to locate one of the biggest and most modern tuna canning factory in Victoria and our capital-city's position as the leading tuna transhipment port in the region, have combined to turn Seychelles into the regional capital of tuna fisheries in this part of the world.

The mission of IOTC sits squarely with the tenets of the Seychelles Way development model. A centrepiece of this development strategy is the establishment of a symbiotic relationship between research and development. Progress, which can be defined as desired innovations, comes about when entrepreneurs and policy-designers make informed decisions stoked by intelligent assessment of the world around us.

In this context, academic undertakings should always be mindful of their dual mandate. This is to accumulate knowledge and to translate this into workable solutions that make differences in the daily lives of men and women.

Fisheries research findings should help the fishing community to improve their catch and assist authorities in their effort to fine-tune policy measures to ensure good management of fish stocks and sustainable development.

I commend IOTC for embracing a hands-on, problem-solving approach.

This organisation is also a good example of north-south cooperation. It is a partnership between some developed countries, including some of the most robust economies in the world, and some developing ones.

But IOTC will only garner more momentum and reinforce its catalytic role only if we endeavour to enlarge its membership and foster active participation.

I would like to avail of this opportunity to invite all those regional countries, which are not yet members of the Commission to please come and join us.

It goes without saying that for there to be serious and responsible tuna fisheries management there must be real participation at all levels. I would therefore call on the

Commission, especially the industrialized and rich member-countries with a wealth of scientific knowledge and human resources, to try through whatever means possible to ensure that scientists from developing countries actively take part in the various scientific working groups. I mention this because I not only believe that these linkages are important but also because I understand that participation from scientists of the region during the working groups in September was generally poor.

Ladies and Gentlemen.

Seychelles is a maritime country *par excellence*. Our Exclusive Economic Zone is 3,000 times bigger than the combined land area of our 115 islands. Today fishing has emerged as the leading foreign exchange earner, making good on President Rene's dream to make "fishing our bread and tourism our butter".

Our nation prizes all fisheries-related research such as the ones undertaken by organizations like IOTC and the Seychelles Fishing Authority as they enlighten our development path.

I would like to thank you all who have come to this conference as well as the Secretary and staff of IOTC and SFA for their tireless efforts and devotion in organising this meeting.

Foreign delegates, I hope that despite your busy schedule you will find time to sample the delights of the *Creole joie de vivre*. This eclectic culture, which prefigures tomorrow's world, was born out of interaction between a hospitable people and an idyllic physical environment. I wish you all an enjoyable stay in Seychelles.

I will now declare the 5th meeting of the Indian Ocean Tuna Commission open.

Thank you.

APPENDIX V - OPENING REMARKS BY DELEGATES FROM PARTICIPATING COUNTRIES

OPENING REMARKS BY THE DELEGATES FROM KOREA

Korea is pleased to participate at this 5th Session of the IOTC and we extend our thanks and appreciation to the IOTC Secretariat and the Scientific Committee for their hard work in preparation for this meeting.

As you all know, IOTC has made significant progress in a variety of areas since its establishments in 1996 and is now facing the same issues and challenges as other regional fisheries organisation in the world. In this regard, IOTC must take steps to assure that sufficient data concerning all fishing activities in the Convention area are available, which is essential to assess the stock status and to support better conservation and management measures. Since one of the characteristics of the IOTC is that a number of IOTC member states are coastal developing countries with increasing fishing interest, IOTC must work cooperatively with these countries to improve data collection. The issue of fishery data is closely related to the future of this organisation.

In addition, the IOTC efforts continue to eliminate illegal, unregulated and unreported (IUU) fishing in the Convention area. This IUU fishing activity poses a serious threat to the conservation of stocks and undermines the achievement of IOTC objectives.

Korea would also like to remind the spirit of the FAO's International plan of action (IPOA) for the management of fishing capacity that a nation's fishing capacity should be maintained at least at the present level for better conservation and management of the tuna stock.

Finally, Korea is concerned about tropical tuna stocks in the Indian Ocean, in particular for their sustainable yield. Bigeye tuna catch has been of increasing and requires urgent measures to maintain the stock status at the healthy level.

Mr. Chairman, we have an imposing agenda. Korea looks forward to working with other delegates through this meeting.

OPENING REMARKS BY THE DELEGATES FROM MALAYSIA

Malaysia would like to congratulate the Chairman, the vice-Chairpersons, the IOTC Secretariat and all other parties for continuing the excellent work in implementing the resolutions of the Commission.

In last year's session, the meeting was informed of Malaysia's initiatives in preparing a bill on High Seas Fishing Act, and with the assistance of the FAO. Malaysia is keen in enacting this Act but on realizing that even some countries of the distinguished delegates have not even had an act of its own, it would seem pointless at this point in time for Malaysia to pursue this matter further. This does not take into consideration to the fact that Malaysia has no fishing fleet in the Indian Ocean. It is most apparent and perhaps mindful, that by having an act in one's own country, most of the requirements in the resolutions can be resolved and adhered to.

In the case of Malaysia, it is hoped that such an act would effectively ensure the proper operations of chartered vessels and, or vessels in joint ventures.

It is only in last month, that Malaysians had a feel of fishing in the high seas when a fishing vessel began exploratory fishing for the first time in Malaysian history. It is still in the very infancy stage of affairs. Therefore Malaysia is keen to cooperate with members in the management and exploitation of the tuna resources in the Indian Ocean.

Apart from the nominal data of the country, Malaysia is now consolidating her efforts to monitor the landings of Foreign vessels. The Port Sampling Programme currently underway would pave the way for the preparation of a monitoring programme. Collecting data in detail is most time consuming and tedious, and thus this will take time.

OPENING REMARKS BY THE DELEGATES FROM MAURITIUS

As I am taking the floor for the first time. I would like to congratulate you for chairing the meeting. I thank the IOTC Secretariat for the nice arrangements of the meeting and the Government of Seychelles for hosting the meeting.

I know we have several important issues to discuss and I wish all discussions will be held in a cordial way. We know from the Working Parties reports, that we have a problem regarding data submission. We are fully agreeable to the fact that data should be submitted in time, so as to allow the Secretariat to process in a timely matter for the Working Parties. Data situation at the IOTC is not sufficient to proceed for any stock assessment. States should make effort to submit data as early as possible.

The issue of flags of convenience is brought in all important fisheries forums. As far as we are concerned, to avoid licensing of FOC vessels as a Mauritian vessel, our Fisheries and Marine resources Act (1998) defines a Mauritian vessel as that which is wholly or at 50% owned by the State of Mauritius, Statutory Corporation or Citizen of Mauritius.

I know we have many other issues to discuss during the Commission sessions. I wish success to the IOTC meeting.

OPENING REMARKS BY THE DELEGATES FROM JAPAN

On behalf of Japanese delegation, I would like to thank the Government of Seychelles and the IOTC Secretariat for hosting once again this very important session of the IOTC.

Mr. Chairman, under your leadership, we made progress on many issues at the last session. The discussion we had in the last session as well as the Scientific Committee last week will serve to guide our deliberations here as we move forward to address the substantive issues that remain. We have developed a paper that will be made available to all delegations, which reflects the views of Japan on outstanding issues. While I will not address here all the points made in that paper, I would like to take a few moments to highlight what we see as some of the key outstanding issues to be addressed in the coming days.

First, given that the continued high level catch of bigeye tuna, in particular of small bigeyes by purse-seine fleets may have adverse impact on stock sustainability and economic viability, I wish to ask all delegates to seriously consider the reduction of its fishing capacity/effort, taking into account their respective competence, through various options as appropriate to each state. These include reduction of fishing days, season and area closure of the use of floating objects without any transfer of such eliminated fishing efforts, and other measures considered appropriate. In this regard, it should be mindful that transfers of capacity/effort to the jurisdiction of another state or another area should be prohibited. This is a key issue for Japan, as well as other delegations, and we hope we can resolve it in a mutually agreeable manner.

Second, IUU fishery including "FOC" fishing vessels is a growing problem and several actions are being undertaken at national, regional and global level. I believe that some concerted action should be undertaken to address IUU fishery to ensure long-term sustainability of tuna stocks in the IOTC area. In this regard, trade related measures should be accepted as a way to promote compliance of management measures. On this basis, my delegation wishes to put forward an action plan for conservation of bigeye tuna in question during this session.

Third, regarding a control and inspection scheme for IOTC, I believe that the control and inspection scheme is a fundamental tool to ensure the effective implementation of conservation and management measures. It is important to mention that the sovereign rights of flag states and plenty transparency should be adequately observed in this scheme. We will have a more specific proposal on this issue during this session.

Fourth, Japan strongly supports the establishment of a Working Party on temperate Tunas on the management of albacore tuna as well as southern bluefin tuna. My delegation considers that IOTC should be regarded as a supplementary body to provide CCSBT with scientific and

technical advices on the conservation and management of southern bluefin tuna, as appropriate, taking into account the IOTC competence, with a view to normalization of CCSBT. We hope this issue is one we can work together to solve.

There are several other issues, Mr. Chairman, that are important to my delegation, such as encouragement of accession of non-contracting party, improvement on the data collection and statistics and convention area. With respect to convention area, I believe that the IOTC eastern boundary should remain at 150 degree E and oppose any change of the boundary which would reduce the IOTC area of competence. We will discuss these issues at the appropriate time.

Mr. Chairman, may I conclude by expressing our best wishes for a productive session of the IOTC and a successful conclusion to its important work.

OPENING REMARKS BY THE DELEGATES FROM EUROPEAN UNION

Mr. Chairman, it is a great pleasure for the European Community to be once again in this wonderful country for the annual meeting of IOTC.

IOTC should, during this fifth Session, make substantial progress in order to catch up with other organizations responsible for tuna management. This is why it is essential, once again, to give priority to solving the problems that still exist in data collection and research. These elements should constitute the basis of all our work.

For the European Community, this meeting in 2000 should have the following priorities:

- The development of an integrated control and inspections scheme. The Community has presented a document containing the broad lines that such as scheme might follow, and would like to start discussions on the subject immediately. Furthermore, in order that IOTC may apply in ineffective fashion the first operational management measures, it would be very desirable to be able to adopt a provisional control regime. This provisional regime need not prevent continued discussions on the integrated scheme, but would serve notably to ensure a minimum level of control, *sine qua non* condition to be able to effectively apply management measures.
- Strengthening of research, which constitutes, without any doubt, the fundamental base on which eventual management measures should be based. In this area, IOTC may to a certain extent be lagging behind other regional fishery bodies, at least in respect of certain fleets and gears. The Community is ready to play an active part to this end.
- The statistical base is a key element for research. Although data for certain fleets (for example the large tuna purse seiners) have long been complete, data for certain other fisheries may be very incomplete. It is, in particular, essential to solve in a reasonable manner the problem of catches from Taiwan province of China, without which it will not possible to conduct the evaluation of certain stocks. The community will spare no efforts to find a satisfactory solution to this problem.
- Finally, measures concerning juvenile tropical tunas and the establishment of a ceiling on capacity of fleets fishing tropical tunas have been identified as measures to be adopted this year. The Community is more than ever in favour of the principle of this type of measure, but believes that in order for them to be effective, it is still necessary to improve the scientific basis and to establish a minimum system of control that can ensure application by all IOTC Parties.

APPENDIX VI - AGENDA OF THE SESSION

1. Opening of the Session
2. Adoption of the agenda and arrangements for the Session (IOTC/00/01)[for decision]
3. Consideration of requests to accede as Cooperating Non-contracting Parties (IOTC/00/02)
4. Admission of observers
5. Matters arising from the Fourth Session
6. Progress report of the Secretariat (IOTC/00/03)
7. Report of the Scientific Committee (IOTC/00/04)
8. Relationship with other bodies [for information and decision]
9. Programme of Work and Budget for 2001 (IOTC/00/05)
10. Any other matters
11. Election of the Secretary (IOTC/00/06)
12. Election of the Chairperson and Vice-Chairpersons
13. Date and Place of the Fourth Session of the Scientific Committee and the Sixth Session of the Commission
14. Adoption of the report

APPENDIX VII - LIST OF DOCUMENTS

IOTC/00/01	Agenda and Arrangements for the session.
IOTC/00/02	Consideration of requests to accede as Cooperating Non Contracting Parties.
IOTC/00/03	Progress Report of the Secratariat.
IOTC/00/04	Report of the Scientific Committee.
IOTC/00/05	Program of work and budget for 2001.
IOTC/00/06	Election of the Secretary.
IOTC/00/07	Statement by the CCSBT
IOTC/00/Inf 1	Actions to cope with FOC Fishing Vessels (Tuna Longline fisheries)
IOTC/00/Inf 2	Collection of Resolutions
IOTC/00/Inf 3	Progress Report on the Joint Programs between Japan and Taiwan, China to Eliminate FOC Large-scale tuna Longline vessels in the world.

APPENDIX VIII - OPENING STATEMENT BY THE REPUBLIC OF THE PHILIPPINES

The Philippine delegation would like to thank IOTC for again inviting us to participate, as observer, to its 5th Session here in Seychelles.

Last June 15, 2000 the Secretary of Foreign Affairs, Department of Foreign Affairs have written IOTC requesting that the Philippines become a cooperating non-contracting party and in due course hope to upgrade the status of its participation to that of a contracting party. We hope that this meeting will act favourably to our request for cooperating party status. In this connection, we wish to inform the Commission that the Philippines has always exercised effective control over fishing vessels under its flag. It has also reported catch data to IOTC since 1998 as well as other data required to be submitted by the Commission.

We also wish to inform the Commission that in the 12th Special Meeting of ICCAT last month the Philippines had been accepted as cooperating non-contracting party.

Mr. Chairman, the Philippines is strongly committed to the principles and obligations embodied in the United Nations Convention on the Law of the Sea (UNCLOS) and the associated Implementing Agreement on the conservation and management of straddling fish stocks and highly migratory fish stocks. In coming to this meeting we are demonstrating to all the seriousness of our commitment to the sustainable management of the highly migratory fish stocks in the Indian Ocean as well as other oceans where Philippine flag vessels are now operating.

The Philippines signed and ratified UNCLOS and have singed the United Nations Implementing Agreement and is now in the process of ratifying it. We also signed the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific. The Philippines has also participated in international conferences o IUU fishing, an issue that is also being considered in IOTC, such as the Technical Consultation in Rome held just over a month ago and also sought membership in the Joint FAO-IMO Working Group. Not that we feel that we have anything significant to contribute at these conferences. Neither were we there to protect any substantial interest. We merely wanted to be at the forefront of the development of this important and key element in the management and conservation of fisheries resources worldwide.

We also would like to inform the Commission that last November 30-December 1,2000 the Philippines hosted the 2nd World Tuna Boat Owners Meeting. The meeting agreed among others to entirely stop fishing for a minimum of 30 days, within the next 60 days after the signing of the Resolution, or to implement a reduction of 35% in fishing effort and to meet again on the last week of January 2001 to assess the need to implement more strident measures, if necessary.

Mr. Chairman, the Philippines is a classic case of a developing country that is just in the process of establishing its own fishing industry, and for which practically all international instruments relating to conservation and management of fisheries resources calls on the more developed fishing States to extend consideration and assistance in the development of a fishing industry. We too, are most concerned about the conservation and management of fisheries worldwide.

APPENDIX IX - OPENING STATEMENT BY VANUATU

I bring you warm greetings from the People and Government of the Republic of Vanuatu. It is indeed an honour and privilege for me to address you on this auspicious occasion on behalf of the Government of Vanuatu.

This is a significant time in our history as it marks the first time Vanuatu is attending the Fifth Session of the IOTC as an observer. At this juncture I wish to take to express my delegation's sincere appreciation to you, Mr. Chairman, for extending to Vanuatu an invitation to attend this session, after receiving our request. Mr. Chairman, may I take this opportunity to also thank the IOTC Secretariat for their valuable assistance in facilitating arrangements for our participation and for the warm reception accorded to us on arrival in this very beautiful country.

As Coastal State as well as a fishing nation, Vanuatu is committed to the principles and obligations embodied in the United Nations Convention on the Law of the Sea and the associated Implementing Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks that calls for co-operative efforts by all States participating in the harvesting of the highly migratory fish species to sustainably manage and to conserve these fisheries, which in the long run would promote economical growth and sustainable utilization of the highly migratory fish stocks.

In our efforts to participate in addressing the concepts of sustainable management of the Highly Migratory Fish Stock, Vanuatu has acceded to a number of important fisheries orientated conventions, for example, the IATTC (Inter-American Tropical Tuna Commission) convention, the recently concluded Convention for the conservation and management of Highly Migratory Fish stocks in the Central and Western Pacific, the United Nations Law of the Sea Convention, the United Nations Implementing Agreement, the Drift Net Convention and is the process of accepting the convention for the conservation of Atlantic Tuna (ICCAT), the IOTC Agreement and the FAO Compliance Agreement.

To demonstrate our support and interest to become a party to the ICCAT convention, Vanuatu participated as an observer at the recent ICCAT meeting held in Marrakech, Morocco.

Vanuatu also has an interest in the Indian Ocean Tuna Commission. Early this year the Government of Vanuatu made the decision for Vanuatu to begin the process of membership to the IOTC. In accordance with Article IV.1 of the Agreement for the Establishment of the IOTC, the Government of Vanuatu formally expressed its interest with the Secretariat. I wish to assure the members of this Commission that Vanuatu is committed to ensuring that the issue of management and conservation is adequately addressed and appropriate steps are being taken to implement this. It is on this basis that my delegation is seeking Vanuatu's membership to IOTC.

Vanuatu's intention to apply for membership demonstrates my Government's strong desire to further expand its cooperation and exchanges with the IOTC. During this Session my delegation hopes to have the opportunity to meet with you and members and further discuss our mutual interests in expanding cooperation and support in this area. It is our strong held view that we can all work together towards the common goal of utilizing and safeguarding the world's marine resources for the benefit and betterment of our future.

I wish to inform the meeting that, up until now there are no Vanuatu vessels operating in the Indian Ocean, however, recent developments have indicated that two vessels already operating in the Indian Ocean are already in the process of being registered as Vanuatu Vessels. The Government of Vanuatu has received catch records for these vessels and will be submitting the information the Director General of FAO. In so doing, the Government of Vanuatu is of the opinion that paragraph 1(iii) of Article IV of the IOTC Agreement has been fully complied with and all that is left for Vanuatu to do is to comply with paragraph (1) of Article 17 of the Agreement, as Vanuatu is a member of FAO.

Vanuatu is certain that we can achieve the task of monitoring our vessels in the IOTC Convention Area and in so doing fully adhering to the terms and conditions as specified in the IOTC Agreement.

APPENDIX X - RESOLUTION 00/01. RESOLUTION ON COMPLIANCE WITH MANDATORY STATISTICAL REQUIREMENTS FOR IOTC MEMBERS AND REQUESTING COOPERATION WITH NON-CONTRACTING PARTIES

The Indian Ocean Tuna Commission;

Recognizing that fisheries information is essential for all scientific work including stock assessments and for proper fisheries management in IOTC,

Recalling that "Mandatory Statistical Requirements for IOTC Members" were introduced at the 3rd Session of IOTC in 1998,

Expressing concern that many IOTC members fail to fully comply with such requirements,

Expressing further concern that there are significant fishing activities carried out by non-Contracting Parties in the IOTC Area and that, in particular, 70% of data from longline operations are still not reported to the IOTC,

RESOLVES that,

1. All Contracting Parties and Cooperating Non-Contracting Parties shall comply with the Resolution 98/01, "Mandatory Statistical Requirements for IOTC Members" adopted at the 3rd Session of IOTC in 1998.

2. The Secretary shall consider options to encourage the timely collection and provision of fisheries data to improve the compliance of data requirements and report them to the 2001 IOTC Scientific Committee and Commission meetings.

3. The Commission shall request Contracting and Non-Contracting Parties, to cooperate by submitting all required fisheries data before the beginning of the next Working Party .

APPENDIX XI - TERMS OF REFERENCE FOR THE WORKING PARTY ON TEMPERATE TUNAS

ALBACORE TUNA

Review new information on the biology and stock structure of albacore tuna (*Thunnus alalunga*) and the relevant fisheries and environmental data.

Coordinate and promote collaborative research on albacore tuna and the relevant fisheries.

Develop and identify agreed models and procedures for the assessment of the stock status of albacore tuna.

Conduct stock assessments for albacore tuna.

Provide technical advice on management options for albacore tuna, the implications of management measures for this species and other issues.

Identify research priorities, and specify data and information requirements for albacore tuna that are necessary for the Working Party to meet its responsibilities.

SOUTHERN BLUEFIN TUNA

Recalling the recognition by the IOTC that the prime responsibility for the conservation and management of southern bluefin tuna (*Thunnus maccoyii*) must remain with the CCSBT;

Recognising that the Working Party on Temperate Tunas should concentrate on matters in relation to albacore tuna;

The Working Party's activities would be limited in respect of southern bluefin tuna to the following:

Exchange of information with CCSBT.

Analysis of information collected by IOTC research and sampling programmes.

Examination of the report of the Scientific Committee of CCSBT to a level of involvement similar to that of ICCAT.

APPENDIX XII - REPORT OF THE THIRD SESSION OF THE SCIENTIFIC COMMITTEE

OPENING OF THE SESSION

1. The Third Session of the Scientific Committee of the Indian Ocean Tuna Commission (IOTC) was held at the Victoria Conference Centre in Victoria, Seychelles, from the 5th to the 8th of December 2000. It was attended by 29 delegates from 12 IOTC Members, as well as three observers from member countries of the Food and Agriculture Organisation (FAO) and intergovernmental organisations. The list of participants is reproduced in Appendix I.

2. Mr. Renaud Pianet of France, Chairperson of the Scientific Committee, chaired the Session. Mr. Pianet welcomed the delegates and noted the large amount of work to be done in the short time available. He then invited the delegates to introduce themselves.

ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION (IOTC/SC/00/01)

3. The Scientific Committee adopted the Agenda as presented in Appendix II of this report. The documents available are listed in Appendix III.

ADMISSION OF OBSERVERS

4. In conformity with the decision of the Third Session of the Commission on the admission of observers, the delegates from the Islamic Republic of Iran (member of FAO) and the International Commission for the Conservation of Atlantic Tunas (ICCAT) were admitted to attend the Session. FAO was also represented at the Session.

PROGRESS REPORT OF THE SECRETARIAT (IOTC/SC/00/02)

5. The Secretariat presented IOTC/SC/00/02, outlining staff changes and the core activities of acquisition, processing and dissemination of information pertinent to the tuna fisheries of the Indian Ocean.

6. The activities undertaken during the year 2000 were mostly focused on the acquisition of information. The Secretariat carried out an extensive review on the fishing fleets operating in the Indian Ocean. Requests for submission of data were sent to national correspondents from many countries, including new forms for data submission intended to facilitate reporting. Important data regarding non-reporting longline fleets were also obtained through the implementation in cooperation with local institutions of sampling programs in Thailand and Malaysia. Information on these fleets was also obtained directly from some of the fishing operators in the area.

7. The IOTC database was completely re-designed, aiming to provide more flexible storage of information and to expand and improve verification procedures for incoming data. Other organizations such as Commission for the Conservation of Southern Bluefin Tuna (CCSBT) and ICCAT requested assistance from the Secretariat during the year to improve their databases. New software was also created and distributed to institutions cooperating with the sampling programmes. Software for the vessel registry and "Wintuna 2000" (in cooperation with the Institut de Recherche pour le Développement (IRD), France) is under development.

8. The catches of non-reporting fleets during recent years were estimated from different sources available. The Secretariat also promoted participation in a joint effort to assess the extent of predation of longline-caught fish and initiated contacts during 2000 to assess the possibility of activating the Working Party on Neritic Tunas.

9. The Committee was also informed about publications issued during the last year and the situation of the IOTC Web site. All print publications of the Secretariat are also available in electronic format for downloading from the Web site.

10. The Committee congratulated the Secretariat for the major achievements in the last year. The representative of FAO thanked the Secretariat for having provided useful information for the new atlas on tuna and billfish fisheries currently being prepared in FAO. He also informed the Scientific Committee that the FAO Web site will soon include landings of tuna and tuna like species by year and gear in the three oceans.

REPORT OF THE WORKING PARTIES

Report of the Permanent Working Party on Data Collection and Statistics (WPDCS) (IOTC/SC/00/03)

11. The Working Party on Data Collection took place in Victoria, Seychelles on December 4th, 2000 and it was attended by 21 participants from 9 countries and organizations.

12. The Chairperson of the Permanent Working Party on Data Collection and Statistics (WPDCS) presented IOTC/SC/00/03, stressing the achievements of the Secretariat during the last year regarding data acquisition, processing and dissemination. Better reporting from the countries was noted; more countries were contacted and new forms facilitating data submission provided. Nevertheless, incomplete reporting is still common, even among Contracting Parties, and data have to be estimated. Late submission of data was also a common problem with few countries reporting before the mandatory deadline of June 30th.

13. The Scientific Committee was also informed of significant progress in retrieval of data from non-reporting longline fleets, achieved both through sampling programmes and data obtained through cooperation with shipping agents. The data obtained along with the records in the recently updated IOTC vessel registry served as basis to re-estimate, in a more accurate manner, the catches of non-reporting fishing vessels in the Indian Ocean.

14. The Committee was also informed on the activities carried out at the Secretariat in respect to development of databases and data dissemination.

15. The Chairperson noted the lack of basic data for some species, especially those targeted by artisanal fisheries and addressed problems with the sampling on EU purse seine vessels in recent years leading to species misidentification and low sampling coverage.

16. The Committee congratulated the Secretariat for the achievements in data collection, highlighting that the situation with the statistics, if not perfect, has considerably improved. The Committee welcomed the recent submission of the nominal catch, fishing craft, catch and effort and size frequency statistics by the Republic of Korea.

17. Nevertheless, the Committee stressed the scarcity or lack of size frequency statistics, especially from longline and artisanal fisheries. The Committee strongly recommend the implementation of sampling schemes by the countries concerned.

18. In this respect, the Committee was informed by Japan on the existence of size statistics in weight recorded by longliner skippers from this country. The Committee strongly recommend that scientists from this country should attempt to assess the availability of these data and conduct a pilot study on the feasibility of their use to estimate length-frequency data.

19. The Committee strongly recommend that the Secretariat should continue conducting the sampling programmes in Thailand and Malaysia and explore ways of implementing similar schemes in other ports of landing of non-reporting fishing vessels operating in the Indian Ocean.

20. The Committee recognized the potential of the IOTC Vessel Registry for estimating the catches of unreported fleets and encouraged the Secretariat to continue its activities in this field.

21. The Committee requested the Secretariat to carry out a revision of the nominal catches database for years prior to 1970, pointing out that the catches were available in FAO FishStat

database. The Secretariat was also encouraged to continue implementing data quality and data verification routines in their databases in order to improve as much as possible the quality of the data gathered.

22. The Committee noted that, during some years, important catches of yellowfin tuna coming from the Indian Ocean beyond the IOTC western boundary (20°E) and reported by South Africa to ICCAT, that are believed to belong to the Indian Ocean stocks, and recommended that the Secretariat should find ways to retrieve these catches for input in the IOTC database.

Report of the Working Party on Tropical Tunas (WPTT) (IOTC-SC-00-04)

23. The WPTT held its second meeting in Mahé, Seychelles from 23 to 27 September 2000. This involved 36 participants from 12 countries or organisations. The main focus of the meeting was to review of the status of yellowfin and skipjack tunas, but a significant amount of time was also devoted to address the request from the Commission to identify areas, times and conditions for a moratorium on purse-seine fishing on floating objects with the objective of reducing juvenile bigeye fishing mortality.

24. The data situation for the tropical tunas has improved relative to the previous year thanks to a better level of reporting, better estimation of non-reported catches and the acquisition of some important data sets. However, there are still important gaps, in particular, regarding size-frequency data affecting the three species concerned.

25. The lack of reliable data still limited the possibilities of conducting rigorous stock assessments for yellowfin tunas. However, after reviewing a number of stock status indicators for the species, the WPTT considered that total catches of yellowfin tuna appear to have reached a plateau, and may now be at or approaching MSY for the current fishing pattern. The recent trend of increased fishing pressure on juvenile yellowfin from purse-seine fishery on drifting objects may decrease the productivity of the stock.

26. A number of indicators of the status of the skipjack tuna resource were also examined. The WPTT considers that the recent trends of these indicators are not cause for immediate concern.

27. Technical advice relating to time-area closures of the purse seine fishery on floating objects is discussed in section 6.1 below.

The Working Party reviewed new information on the status of bigeye tuna. This included improved statistics through the sampling schemes and the availability of previously unreported data from Taiwan Province of China. Two stock assessments were presented and discussed, but the results were inconsistent and it was not possible to base technical advice on them. The Scientific Committee reiterates last year's advice that the status of bigeye tuna should be considered uncertain but of concern.

Report of the Working Party on Tagging (WPT) (IOTC/SC/00/05)

28. The WPT met in Victoria, Seychelles from 29 September to 1st October, 2000. It was attended by 19 participants from 8 countries and organizations.

29. The Chairperson of the WPT presented the report (IOTC/SC/00/05). This report contains an executive document (Appendix 3 of the WP report), which summarizes the objectives, proposed activities and budget of the proposed programme, and a detailed report concerning all the technical components of this programme (Appendix 4 of the WP report). The executive document is presented in Appendix V of this report.

30. The current and past situation of the three tropical tuna species (yellowfin, skipjack and bigeye tunas) was reviewed, and the dramatic increase in the catches over the last decade was noted. It was noted that these now amount to over 700,000 t annually, with a producer value estimated at two billion U.S. dollars. Although these species have mostly been caught by DWFN

industrial fleets, the catches of artisanal fleets from coastal countries are also high, especially taking into account the high economic, social and nutritional dependency of some of these countries on these resources.

31. It was noted that no rigorous stock assessment could be conducted on any of the three species due to the lack of satisfactory biological and population dynamics parameters. However, the Working Party on Tropical Tunas had indicated that other indicators to assess the status of the stocks gave results that give cause for concern, especially for bigeye tuna. The Commission, at its 4th Session and taking into account the precautionary approach, had called for measures to reduce the catch of juveniles of bigeye tuna by purse seiners setting on floating objects as direct consequence of the concerns about the situation of the species.

32. The Working Party considered that most of the biological data such as growth, natural mortality and stock structure required for stock assessment could most effectively be collected through a tagging experiment. Large-scale tagging experiences have given excellent results in other oceans and the data obtained have been crucial in further assessments. Tagging experiments on this scale have not been conducted in the Indian Ocean and the scarce data available from tagging was carried out years ago in very localized areas and times.

33. The Committee agreed that, despite the dramatic increase in catches over the past ten years, the status of stocks could not yet be rigorously assessed and that more basic data are needed. Tagging was recognized as the most appropriate way to fill these gaps in a sound and timely manner. Tagging data are necessary to estimate age specific natural and fishing mortality, to improve knowledge about stock structure, migration patterns and mixing rates between stocks, the influence of FADs and seamounts on behaviour and interactions between different fisheries.

34. The Working Party proposed a five-year tagging programme, starting in 2002, covering a broad range of sizes of the three main tropical tuna species. This programme would be implemented over the whole Indian Ocean, using different tagging platforms. The more important and more expensive of these platforms will be two pole and line vessels planned in the Eastern and Western Indian Ocean during two years. Many of the key parameters needed to assess the status of the stocks could not be determined if there was a reduction of the area or the length of the programme.

35. It was noted that the total budget, assessed at nearly US$ 19 million, includes costing for all the elements needed in the programme. The two main components of this programme are: 1) the rental cost of tagging vessels (62%); and 2) the cost of scientists and technicians (16 %) in charge of the programme. This budget could be substantially reduced by contributions in kind from contracting and collaborating parties. These could include the provision of vessels, of scientists and technicians, of the publicity and support needed in each Indian Ocean coastal country for tag recovery. In this respect, it should be noted that some countries have already proposed the use of their research vessels for the programme.

36. It is planned that this budget should be planned on a voluntary basis separate from the regular budget of IOTC. Various industrialized countries fishing in the Indian Ocean and some international organisations could be potential donors contributing to this budget.

37. The funding level needed to fulfil the objectives of the programme is fully justified by the expected short and long-term benefits. It was pointed out that the proposed funding level amounted to only 0.2% of the value of the average yearly landing over the past five years.

38. The WPT also recommended that a pilot study should be organized to test different platforms and tagging methods, and also to initiate tagging in sport fisheries and publicity. The cost of this study was estimated at US$ 430,000. It was noted that training of staff from coastal countries would be of benefit for the main phase if pilot tagging experiments are undertaken

39. Taking into account the high social and economic value of the resource and the need for assuring sustainable exploitation, the Committee strongly endorsed the urgency of implementing this large-scale tagging programme. It was considered that this is the most efficient approach for obtaining the data needed for assessing uncertainties regarding the situation of tuna stocks in the Indian Ocean, the only ocean in which such large scale tagging of tunas has never been conducted. This could reduce the need for more conservative management that would be required through application of the precautionary approach.

40. Taking into account these considerations, the Committee strongly urges that:

1) The Commission approves now the pilot tagging program planed for 2001 and provides the Secretariat with its funding as soon as possible.
2) The Commission approves now the principle and planned framework of the proposed large-scale tagging program.
3) The concerned industrialized countries or entities actively fishing in the Indian Ocean identify and consolidate the international funding which is urgently needed to conduct this program.

Report of the Working Party on Billfish (WPB) (IOTC/SC/00/06)

41. The WPB held its first meeting in Victoria, Seychelles on October 2-3, 2000, involving 18 participants from 11 countries or organisations. John Gunn from CSIRO, Australia was elected Chairman of the Working Party for the next biennium. The priorities for this meeting of the WPB were to assess the availability and quality of the data about billfish and to review the status of swordfish.

42. The Working Party concentrated on reviewing the data situation for the species involved, noting that, while data concerning the major longline fleets are reliable, there are significant gaps in the information available from coastal (artisanal) fisheries and for non-reporting fleets. In particular, the statistics for Istiophorids suffer from problems of species identification and high levels of discards.

43. The total reported catch of billfish has increased considerably over the past 15 years, largely due to increases in the take of swordfish and Indo-Pacific sailfish. Available data suggest that catches of marlins have remained reasonably stable over this period.

44. Swordfish has become an important species both in the western and eastern Indian Ocean where it has been targeted by both DFWN and coastal longline fleets. A preliminary assessment on the basis of data from Japanese and Taiwanese longline fleets yielded inconclusive results. However, the Working Party noted that the rate of increase in the catches and effort seen in recent years is unlikely to be sustainable. Therefore, it recommended that the resource be monitored closely in future.

45. No assessments were presented regarding Istiophorid species. Therefore, the Working Party reviewed the latest indices of abundance published in the literature. These analyses indicate declining trends in indices of abundance for black marlin and sailfish for recent years and less clear trends for blue and striped marlins. The Working Party noted that these analyses should be considered preliminary and that more effort needs to be placed on the standardisation of catch-and-effort data.

46. The Committee expressed great concern about the lack of basic data on billfish and agreed that all parties should cooperate to find ways to improve the current situation. The Committee also expressed concern regarding the uncertainties with the standardized CPUEs for Istiophorids provided by the WP and strongly endorsed the recommendation of the Working Party to encourage studies to determine the stock structure of billfish in the Indian Ocean through further cooperation in the collection of samples for analysis.

47. The Committee recommended that, as far as possible, indices of abundance be estimated for both industrial and artisanal fleets.

48. The Committee endorsed the conclusion from the Working Party that there was insufficient information available on which to base recommendations on specific management action.

49. Australia informed the Committee that a Symposium on Billfish will be held in Cairns (Australia) in August 2001 and encouraged participation from experts on Indian Ocean billfish.

Proposal for a mode of functioning of the species Working Parties (IOTC/SC/00/08)

50. The Chairman of the Working Party on Tropical Tuna (WPTT) addressed the Scientific Committee to express the Working Party's concerns about not being able to conduct a comprehensive assessment of any of the species during the past two years. The WPTT made several suggestions to improve the efficiency of its work. Similar measures might also be relevant to other species Working Parties:

i) Extend the length of the Working Party meetings to seven days

ii) The Working Party can review new information on the status of all the assigned species, but should concentrate in the detailed assessment of only one species at each meeting.

iii) Within the Working Party, analytical work and other tasks should to be planned in advance and assigned to 2-4-scientist task forces, that will report in detail to the plenary session.

iv) The assessment should be performed by the Working Party, rather than by individual scientists.

51. The Scientific Committee agreed that these suggestions would improve the efficiency of the WP and that they should be taken into account when planning the next WPTT meeting.

52. Additional suggestions reviewed by the Scientific Committee included:

i) Create an *ad hoc* or permanent Working Party on Methods, which could concentrate on discussing different methods to obtain indices of abundance, or to evaluate and standardize assessment models.

ii) That Working Parties produce an standard Executive Summary that will serve as the main means to report to the Commission, but does not replace the detailed report of the Working Party.

53. The Scientific Committee agreed with the suggestion that Working Parties produce an Executive Summary for the Commission. It was also suggested that the summary should include a short section with historical information. Therefore, the Committee requested that each Working Party decide on the content and format of their Executive Summary, and that they produce an Executive Summary for the species in which the Working Parties concentrate in their next year's meetings.

54. There was consensus on the need to establish an *ad hoc* Working Party on Methodology. This would not be a permanent Working Party, but it would meet as necessity arises. The Committee agreed that the Secretariat should contact potential participants and that arrangements should proceed for a meeting in 2001, before the next meeting of the WPTT. The Scientific Committee considered that the process of evaluating and standardising assessment methods is likely to take several years before it can produce the desired results. Obviously, Working Party in Methodology would meet well in advance of the Working Party in Tropical Tunas. The Committee also recommended that experts from other agencies and organizations be invited to participate in the meetings of the Working Group on Methodology, to take advantage of their experience. The Scientific Committee requested the Secretariat to make the arrangements for the venue and participation in this *ad hoc* Working Group.

Schedule of Working Party meetings in 2001

55. The Committee agreed that the Working Party on Data Collection and Statistics should meet again in 2001. It was recommended that this Working Party be held just before the fourth Session of the Scientific Committee to facilitate participation of scientists also attending that meeting.

56. The Committee agreed that the Working Party on Tropical Tunas should meet again during the third week June 2001 with priority given to bigeye tuna.

57. The Secretariat should proceed with arrangements for a meeting of an *ad hoc* Working Party on Methods, which would take before the next WPTT meeting. The date and venue will be announced by the Secretariat after consultation with interested scientists. The Working Party would focus on an assessment of methods to obtain indices of abundance and on new approaches to production modelling.

58. The Committee agreed that the Working Party on Tagging should meet again on request of the Commission. If the pilot study is approved and funding secured, this meeting should take place as soon as possible in 2001; otherwise it may meet in conjunction with the WPTT in June 2001.

59. The Committee agreed that the Working Party on Billfish should meet again in 2001 at a place and date to be determined. Proposals were put forward to hold the meeting either in Australia in August 2001 (using the opportunity of the Billfish Symposium) or in La Réunion in November. The Committee noted the two options and agreed that final arrangements be made at a later date by the Secretariat after contacts with the interested parties.

60. The Committee agreed that the Working Party on Neritic Tunas should meet in 2001 at a place and date to be determined. The Committee agreed that the Working Party should primarily focus in improving data collection and reporting by countries fishing these species. Iran indicated that is willing to host the first meeting of this Working Party.

61. The Committee agreed that it is not justified to activate the Working Party on Temperate Tunas as little basic data on albacore tuna are available, in particular for size frequencies, and this species is not intensively fished.

ADVICE OF THE SCIENTIFIC COMMITTEE ON QUESTIONS ASKED BY THE COMMISSION

Options for a moratorium on purse-seine fishing on drifting objects to reduce fishing mortality of juvenile bigeye tuna

62. At its 4th Session, the Commission requested the Scientific Committee to provide advice on precise areas, periods and conditions for a moratorium on fishing with purse seines on floating objects that would bring about a reduction of the fishing mortality of juvenile bigeye. The Commission also requested the Scientific Committee to present various options, with estimates of their likely effects on the catch rates of the three species of tropical tunas.

63. The WPTT reviewed information on the spatial and temporal distribution of catches, effort and catch rates for the main fleets of purse seiners in relation to their catches of bigeye tuna. From this review, it became clear that there are areas (and times) where catches of young bigeye tuna and yellowfin tuna taken on drifting objects are particularly high

64. Of the potential areas considered for a moratorium, the area off the coast of Somalia was found very clearly to be the most suitable for a time-area closure that would achieve the intended objectives, due to the seasonality of the fishery and the large catches on drifting objects that take place in this area. Two possible areas within this region were examined further:

- An area extending from the African coast to 60°E and from the equator to 5°N.
- A larger area extending from the African coast to 60°E and from the equator to 10°N.

Table 1. *Summary of the benefits and costs associated with the options for a moratorium on purse-seine fishing on drifting objects.*

Areas	*Months*				*Benefits (reduction of juvenile mortality)*		*Maximum Costs (loss of catches in t)*	
	A	**S**	**O**	**N**	*Bigeye*	*Yellowfin*	*Skipjack and large tunas*	*Total*
0-5 N 20-60 E	x	x	x	x	22%	29%	37,980	47,933
	x	x	x		18%	23%	30,930	39,111
		x	x	x	18%	24%	31,631	39,857
		x	x		14%	18%	24,582	31,034
			x	x	11%	15%	21,428	26,746
0-10 N 20-60 E	x	x	x	x	28%	36%	48,503	61,078
	x	x	x		23%	28%	38,235	48,182
		x	x	x	23%	30%	41,111	51,646
		x	x		18%	23%	30,842	38,750
			x	x	14%	20%	28,585	35,620

Notes: **Benefits** expressed as percent reduction in the annual fishing mortality.

Costs expressed as the maximum loss of catches in the area and period, based on the average catches for 1995-1998. **Large tunas** refer to yellowfin tuna larger than 5 kg and bigeye tuna larger than 10 kg.

Total includes to the catches of skipjack, yellowfin (all sizes) and bigeye (all sizes) tunas.

65. In each of these two areas, five options for time strata were examined:

- From September to October (two months)
- From October to November (two months)
- From August to October (three months)
- From September to November (three months)
- From August to November (four months)

66. Reductions in catches of juveniles were examined for yellowfin tuna of less than 5 kg and bigeye tuna of less that 10 kg. Losses to the fishery were assessed as reductions in catch of skipjack, of yellowfin over 5 kg and of bigeye over 10 kg.

67. The calculation of the benefits and the costs for these options is based on the assumption that the loss of the catch in the moratorium area will not be offset by catches in other areas or by fishing on free-swimming schools in the moratorium area. This represents an extreme scenario, as the vessels affected by the moratorium will be able to continue fishing during this period in other areas and possibly on free-swimming schools within the moratorium area. However, it was not possible to assess the extent of this compensatory catch either in weight or in numbers of juvenile bigeye and yellowfin caught because of the interannual variability in catches and lack of knowledge on the effect of radical increases in effort outside the moratorium area. The calculations assume a total closure of the area because the majority of the catches in the areas and periods analysed are in association with drifting objects.

68. Short-term losses and gains were estimated for different species-size categories, both in terms of numbers and weight (see Table in Appendix IV). In this table, the percentages refer to the decrease in catches of each species-size category, measured as a percentage of the historical (1995-1998) average annual total catch in the whole Indian Ocean for that species-size category. These results are further summarized in Table 1.

69. In these tables, decreases in catches of bigeye tuna less than 10 kg and of yellowfin tuna less than 5 kg are to be interpreted as benefits in terms of reductions of fishing mortality on small fish

and should properly be assessed in numbers. Decreases in catches of skipjack tuna and of larger yellowfin and bigeye tuna are to be interpreted as costs, in terms of loss of catches and should be assessed in weight. In the Figure shown in the Appendix IV, the trade-offs of the proposed options are illustrated graphically.

70. The Scientific Committee notes that these are estimates of short-term losses and gains only, as the benefits of the reductions in fishing mortality expected in later years are not taken into account in the calculation due to the absence of rigorous stock assessment. In general, a reduction in the mortality of juvenile bigeye tuna is expected to result in more fish becoming available over time to longline fisheries, while a reduction in mortality of juvenile yellowfin tuna will likely benefit both longline and purse-seine fisheries. However, most of the losses in skipjack tuna catches will not be recovered, as these fish will not be available to any other fishery because of the high natural mortality of this species.

71. The Scientific Committee noted that there is a high initial cost of implementing a moratorium, as this will disrupt the activities of the fishery. Therefore, it considered that the expected benefits (in terms of reduction of juvenile mortality) should be sufficiently large to compensate for that initial cost, as well as for expected catches outside the moratorium area. The Scientific Committee, in this spirit, considered that a shorter moratorium based on the larger of the two areas presented is more likely to be effective than a longer one based on the smaller area.

72. It was also emphasized that the moratorium will be beneficial, not only for the bigeye tuna stock but also for the yellowfin tuna, as analyses in the Indian Ocean and other oceans indicate that the optimum average size in the catch is much larger than the size caught in association with drifting objects. In addition, there would be a decrease in the discards of fish of non-commercial sizes and species.

73. The Scientific Committee also stressed that actions should be taken to ensure that all purse seine and associated supply vessels operating in the Indian Ocean, including those from non-Contracting Parties, comply with the moratorium. Otherwise, the intended benefits might not be attained.

Measures other than a time-area closure were also briefly discussed. Some were deemed not practical (quota measures; minimum size for bigeye tuna) and for others it was considered that the information available was not sufficient to assess their effectiveness in achieving the objectives (such as a ban supply vessels; a reduction the depth of the nets or a reduction in the number of drifting objects). Other measures, like keeping all discards on board or restricting fishing on seamounts, were considered to provide insufficient benefits.

Optimum Fishing Capacity of the Fleet

74. The Scientific Committee noted that the lack of reliable stock assessments and the lack of data on the current fishing capacity for some tuna fleets in the Indian Ocean continues to limit its ability to provide advice on this subject. However, there was consensus on some general observations.

75. As most tuna fisheries are multi-specific, an overall optimum fishing capacity would represent a compromise that depends on the status of the individual species involved. Committee also concurred that a definition of fishing capacity should be closely related to the concept of effective fishing effort and fishing mortality. It was noted that the catching power of existing vessels was increasing constantly through improvements in efficiency. Therefore, a definition of fishing capacity should take into account vessel characteristics that are directly related to fishing efficiency, so that a reduction in fishing capacity of a given percentage would result in a similar percentage reduction in effective fishing effort.

76. The Scientific Committee also noted that recent catches of tropical tunas are levelling off. Therefore, it is advisable to avoid further increases in fishing capacity.

77. The Scientific Committee took note of the initiative by scientists from Japan described in the document IOTC/SC/00/Inf.1, and encouraged the scientists to submit the document to review at the next meeting of the WPTT.

Permanent Report on the Status of the Species (IOTC/SC/00/07)

78. The Secretariat presented a proposal for a Report on the Current Status of a Species (IOTC/SC/00/07). The main objective of the Report would be to compile in the most comprehensive and, at the same time, concise way as much information as possible concerning a single species, including its biology, characteristics and trends of the fisheries, stock assessment results and management measures implemented. This Report would therefore document current assumptions and knowledge concerning a species. It would not replace the regular reports from the IOTC Working Parties but would serve as a reference for an audience including scientists, managers, industry and the general public.

79. The Report would be periodically updated by the relevant Working Party through a procedure to be determined by the participants. The Secretariat would be the repository of the document and be responsible for maintaining it, documenting changes and making it available through the IOTC website.

80. The Committee congratulated the Secretariat for putting forward this idea, considering the report an important, if not essential, tool for the Working Parties and encouraged national scientists to collaborate with the Secretariat's efforts to develop the Reports.

81. FAO presented information on the Fisheries Monitoring System (FIRMS), which is part of FAO's Fisheries Global Information System (FIGIS), an information system on fisheries aimed at providing policy makers with strategic information on fishery status and trends on a global scale. FIRMS provides policy makers with a single entry point to strategic data, information, analyses and reviews of fisheries issues and trends. The FIRMS system includes domains of information on species, fishing technology, resources, fisheries, vessels, and management systems and integrates GIS facilities. While organized in a data base, this information is presented in the form of fact sheets illustrated by maps, images, and statistical graphics constructed from available time series data, and published via the internet, through CD-ROMs and in publications. Being a satellite of FIGIS (the Fisheries Global Information System), FIRMS will be connected to the other specialized sub-systems under FIGIS umbrella, such as Aquaculture (SIPAM sub-system), Trade and Marketing (GLOBEFISH sub-system), and Research (ASFA and ONEFISH sub-systems).

82. FIRMS's maintenance will rely upon a network of partners (such as Regional Fishery Bodies) contributing to the system according to their own mandate. The system's control is decentralized and contribution and maintenance rights are assigned to FIRMS partners who are the data owners. The partners must share certain standards and adhere to certain rules aimed at ensuring the best possible quality of data and information. New Internet technologies will ensure systematic integration of information from national to global levels with no major additional workload, except during the development phase.

83. FAO provided the Secretariat with several additional documents describing FIRMS in more detail, as well as templates of collaboration agreements with other international organizations.

84. The Scientific Committee thanked FAO for introducing such an interesting and useful system, and reminded delegates that the Secretariat is providing FAO with information for its Global Atlas of Tunas. The Committee agreed that the principle of FIRMS is of interest to the Commission and Member Parties and that there is considerable synergy between the FIRMS concept and the Permanent Report of the Status of the Species

Progress on a survey of predation of longline-caught fish (IOTC/SC/00/09)

85. During the First and Second Sessions of the Scientific Committee several Members indicated concern about the damage caused by marine mammals and shark predation on longline-caught tunas. At the Fourth Session of IOTC, Japan proposed a five-year research plan on this subject that would start in 2000. It is proposed to collect comprehensive information, improve catch statistics, find possible methods of preventing predation and explore any possible implications for stock assessment of tunas and the ecosystem approach. The Commission endorsed this plan.

86. Japanese scientists presented the results of past surveys during the meetings of the working parties on Tropical Tunas and on Billfish and presented preliminary results of a survey that started last September (document IOTC/SC/00/11). These preliminary results indicate damage rates in the range of 10-30%.

87. Japanese scientists also provided the Secretariat with draft survey forms on predation of tunas caught by the longline fishery. Last October, the Secretariat distributed adapted versions of these forms to scientists from 15 institutions of contracting and collaborating parties, inviting participation in the survey. Scientists from Thailand, Seychelles and India have confirmed their participation. Scientists from other countries have informally expressed interest in the project, although lack of funds has been mentioned as an impediment for an extensive involvement. Australia will commence shortly a programme with onboard observers who, among other things, will collect information on predation rates and will provide results that are complementary to the survey. Korea expressed full support for the programme and will distribute Korean versions of the forms to longline skippers. Collection of the results may take some time, as many Korean longline vessels return to port only once a year. Mauritius also expressed interest in the program.

88. The Scientific Committee agrees that the extent of predation unknown and might have important implications in terms of catch statistics and stock assessments, and encourages the participation in the survey of other Member and Non-Member countries.

Proposal for training activities (IOTC/SC/00/10)

89. At its second Session, the Scientific Committee asked the Secretariat to present to its next meeting a study on the possibility of organizing, at the same time as the meetings of the working parties, training sessions on sampling methods, evaluation of resources and other techniques and methods. The beneficiaries would be scientists who have a certain experience of subjects being treated by the working party, but lacking specific expertise on certain of the techniques to be discussed.

90. The Secretariat considered three possible approaches, which are not necessarily mutually exclusive (Document IOTC/SC/00/10). The first option would be to organize, immediately before the Working Party meeting, a training course of one or two weeks on the techniques related to the subjects of the Working Party. A second approach would be to invite scientists with the required experience to participate in working party meetings, on the understanding that they would give seminars to describe and clarify specific subjects discussed in the meeting. The third approach would be to provide training to scientists from participating countries attached to the Secretariat for a longer period immediately before the working party meetings. The persons concerned would then work in close association with the specialist staff member and present their results to the working party

91. The Scientific Committee agrees that the third option would be the most convenient and effective, but also indicated that the target trainees should be defined in more explicit terms. It was intended to target coastal country scientist with good knowledge or having data of some aspects of the fishery. The Committee also emphasized that these training sessions should not be another burden to the Secretariat, and that collaboration with other institutions and laboratories should be pursued.

ANY OTHER BUSINESS

Southeast boundary of the IOTC Convention Area

92. The Agreement creating the Indian Ocean Tuna Commission determined the area of competence of the Commission as FAO statistical areas 51 and 57. The latter extends eastward to 150ºE. The precursor of IOTC, the Indo-Pacific Tuna Management and Development Programme (IPTP), took 141ºE as the appropriate boundary for collecting statistics of Indian Ocean tuna fishing activities. The newly adopted Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Central and Western Pacific has also aligned its area of competence at 141ºE, taking this as the western boundary for the western Pacific tropical tuna fishery.

93. Until instructed otherwise by the 4th Session of the Commission, IOTC data were based on this boundary. Under the current system of statistical reporting, tropical tunas caught between 150ºE and the southeastern coast of Australia are included in the IOTC catch statistics. Leading to an overlap in statistical coverage and, potentially, in management responsibility. At the 4th Session of IOTC, Australia undertook to provide evidence that the 141ºE boundary would more appropriate, based on the ecology and oceanography of region and the distribution of the catches of tuna and tuna-like species.

94. The catches of tuna and tuna-like species in the region of south-eastern Australia provide evidence that tropical tunas from the Pacific do not move west of about 147ºE. Furthermore, catches of theses species south of 35ºS, in the band defined by 130ºE to 147ºE, are extremely low. The oceanography indicates that a cold-water wedge in the area west of Tasmania may act as a natural barrier to the movement of tropical tunas. Differences between demersal fish and invertebrate communities further highlight a natural border between the oceans to the east and west of Tasmania. Albacore and swordfish tolerate cooler waters that yellowfin, skipjack and bigeye tuna and, as a result, these species are likely to be capable of movement between the Pacific and the Indian Ocean. This is not the case for southern bluefin tuna, for which there are no boundaries. The Scientific Committee agreed that the arguments indicating that yellowfin, skipjack and bigeye tunas do not move west of 147ºE are convincing. In any case, the catches of these species between 141ºE and 150ºE are negligible. The Committee concluded that, for these tropical species, the position of the boundary would make no difference in the stock assessments, but may be of concern in management situations. For temperate species like albacore and swordfish, however, the question remains whether the Commission should include the small catch of the zone, in analysis and management considerations.

Effects of voluntary limits of worldwide tuna catches

95. The Committee was informed of the resolution taken by the World Tuna Purse Seine Organization (WTPO), an association of tuna boat owners. This association has approved several measures targeting on the reduction of the skipjack catches for marketing reasons.

96. Recommended measures vary between fleets from a ban on fishing in association with FADs to a reduction in skipjack landings and a temporary ban on fishing activity.

Although the details and practical consequences of these proposed measures are not yet clear, they should be followed with great care by scientists. It is clear that some of them might help to decrease the fishing effort on the small yellowfin and bigeye associated to FADs, but others may have serious consequences for statistics and stock assessment due to the possible increase in unreported discards.

ELECTION OF THE CHAIRPERSON AND VICE-CHAIRPERSON FOR 2001-2002

97. Mr. Renaud Pianet and Dr. V.S. Somvanshi were respectively re-elected by acclaim for a second two-year term as Chairperson and vice-Chairperson of the Scientific Committee.

ADOPTION OF THE REPORT

98. The report of the Third Session of the Scientific Committee was adopted on December 8th, 2000.

APPENDIX I. AGENDA FOR THE THIRD SESSION OF THE SCIENTIFIC COMMITTEE

1. *Opening of the Session*
2. *Adoption of the Agenda and arrangements for the Session (IOTC/SC/00/01)*
3. *Admission of observers*
4. *Progress Report of the Secretariat (IOTC/SC/00/02)*
5. *Report of the Working Parties*
    1) *Report of the Permanent Working Party on Data Collection and Statistics (WPDCS) (IOTC/SC/00/03).*
    2) *Report of the Working Party on Tropical Tunas (WPTT) (IOTC/SC/00/04)*
    3) *Report of the Working Party on Tagging (WPT) (IOTC/SC/00/05)*
    4) *Report of the Working Party on Billfish (WPB) (IOTC/SC/00/06)*
    5) *Proposal for a mode of functioning of the species Working Parties*
    6) *Schedule of Working Party meetings in 2001*
6. *Advice of the Scientific Committee on questions asked by the Commission*

6.1. Options for a moratorium on purse-seine fishing on drifting objects to reduce fishing mortality of juvenile bigeye tuna

6.2. Optimum Fishing Capacity of the Fleet

7. Permanent Report on the Status of the Species (IOTC/SC/00/07)

8. Progress on a survey of predation of longline-caught fish (IOTC/SC/00/09)

9. Proposal for training activities (IOTC/SC/00/10)

10. Any other business

10.1. Southeast Boundary of the IOTC Convention Area

10.2. Effects of Voluntary Limits of Worldwide Catches

11. Election of the Chairperson for 2001-2002

12. Adoption of the Report

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APPENDIX III. LIST OF DOCUMENTS

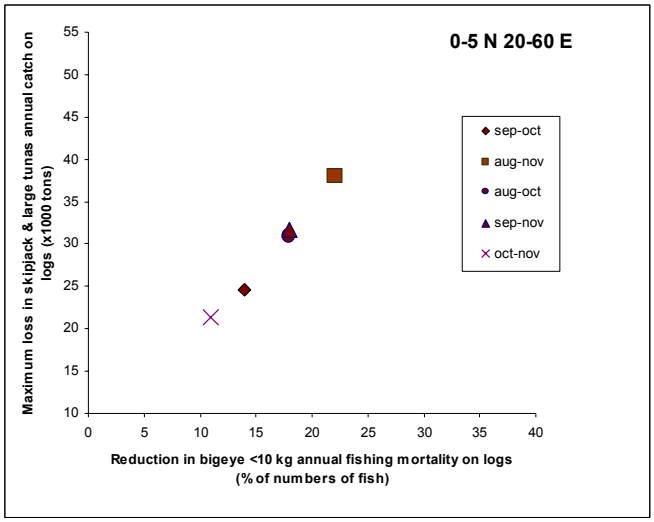
IOTC/SC/00/01	Provisional Agenda
IOTC/SC/00/02	Progress Report of the Secretariat
IOTC/SC/00/04	Report of the Working Party on Tropical Tunas
IOTC/SC/00/05	Report of the Working Party on Tagging
IOTC/SC/00/06	Report of the Working Party on Billfish
IOTC/SC/00/07	Proposal for Permanent Report on the status of a species
IOTC/SC/00/09	Progress of a survey of predation of longline caught fish
IOTC/SC/00/10	A Proposal for training activities
IOTC/SC/00/11	Preliminary result of predation survey on the Japanese tuna catch, *by National Research Institute of Far-Seas Fisheries of Japan (NRIFSF)*
IOTC/SC/00/Inf 1	Consideration on the optimum fishing capacities to conserve bigeye tuna stock in the Indian Ocean, *by NRIFSF*
IOTC/SC/00/Inf 2	The global fisheries Resources monitoring system (FIRMS – a FIGIS sub-system), *by A. Garcia, R., Grainger and M.Taconnet*

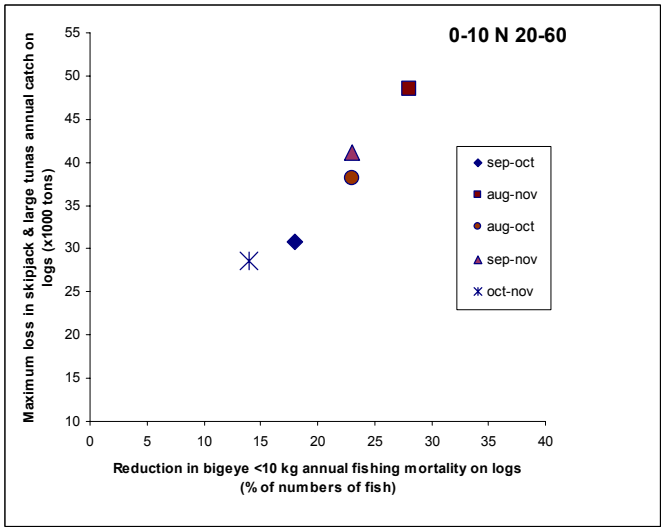
APPENDIX IV. CONSEQUENCES OF OPTIONS FOR A MORATORIUM (ADDITIONAL TABLE AND FIGURES)

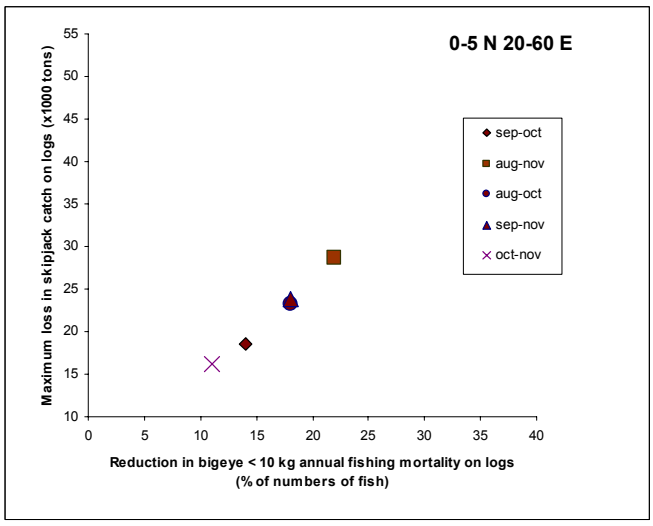
Table 1. Effects on catches of the different options for a moratorium.

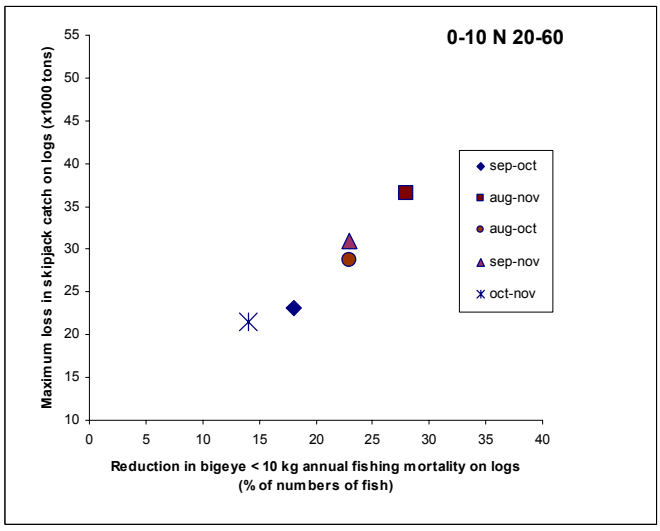
		Area				Area			
		0-5N 20-60E				0-10N 20-60E			
Months	Species/Size Category	%	Number	%	Weight	%	Number	%	Weight
August-November	Yellowfin < 5kg	29%	2,254,024	29%	6,559	36%	2,840,816	36%	8,270
	Yellowfin > 5kg	24%	436,938	22%	8,179	31%	551,009	28%	10,451
	Bigeye < 10 kg	22%	963,308	21%	3,395	28%	1,222,222	26%	4,305
	Bigeye > 10 kg	23%	62,797	23%	1,138	29%	79,026	29%	1,422
	Skipjack	25%	10,747,241	27%	28,663	32%	13,755,141	35%	36,630
September-November	Yellowfin < 5kg	24%	1,857,493	24%	5,457	30%	2,381,116	30%	6,990
	Yellowfin > 5kg	21%	383,631	18%	6,834	27%	488,790	24%	8,888
	Bigeye < 10 kg	18%	784,445	17%	2,769	23%	1,005,642	22%	3,545
	Bigeye > 10 kg	20%	53,926	19%	964	26%	69,294	25%	1,233
	Skipjack	20%	8,806,255	23%	23,833	26%	11,498,111	29%	30,990
August-October	Yellowfin < 5kg	23%	1,818,799	23%	5,308	28%	2,236,513	28%	6,435
	Yellowfin > 5kg	18%	322,556	18%	6,681	23%	414,028	22%	8,354
	Bigeye < 10 kg	18%	779,234	18%	2,873	23%	998,105	22%	3,512
	Bigeye > 10 kg	19%	50,800	19%	935	23%	61,824	23%	1,123
	Skipjack	22%	9,601,513	22%	23,315	25%	10,922,295	27%	28,758
September-October	Yellowfin < 5kg	18%	1,443,915	18%	4,206	23%	1,776,813	22%	5,155
	Yellowfin > 5kg	16%	285,396	14%	5,336	20%	351,809	18%	6,791
	Bigeye < 10 kg	14%	636,649	14%	2,246	18%	781,524	17%	2,753
	Bigeye > 10 kg	16%	42,189	15%	761	19%	52,093	19%	934
	Skipjack	16%	6,907,496	17%	18,484	20%	8,665,266	22%	23,118
October-November	Yellowfin < 5kg	15%	1,209,013	16%	3,641	20%	1,606,107	21%	4,821
	Yellowfin > 5kg	16%	295,000	12%	4,593	21%	380,437	17%	6,176
	Bigeye < 10 kg	11%	475,628	10%	1,677	14%	628,720	14%	2,214
	Bigeye > 10 kg	14%	37,951	13%	660	18%	49,398	17%	857
	Skipjack	13%	5,766,912	15%	16,174	18%	7,756,091	20%	21,551

Figure 1. Benefits and costs of different options for a moratorium.









APPENDIX V. A PROPOSAL FOR AN INDIAN OCEAN TROPICAL TUNA TAGGING PROGRAMME (IOTTP)

(Developed by the Working Party of Tagging, Seychelles September 2000)

INTRODUCTION

The rapid increase in catches of tropical tunas (yellowfin, skipjack and bigeye) in the Indian Ocean over the last decade (Figure 1) has highlighted the need for effective management strategies designed to ensure sustainable exploitation of these resources.

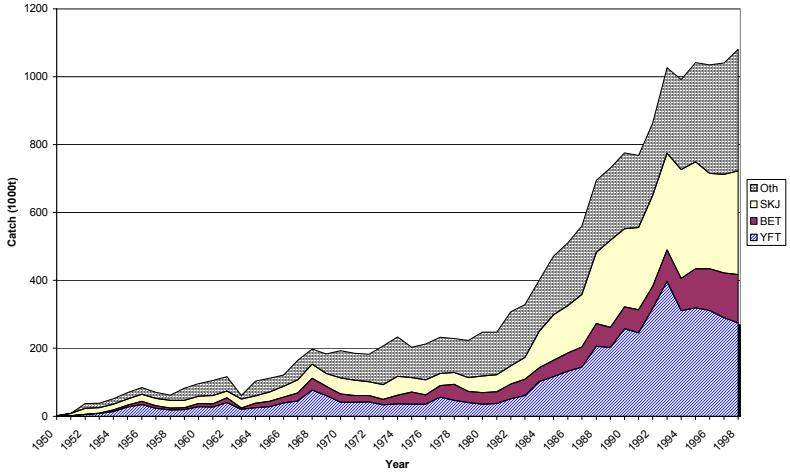


Figure 1: Yearly catches of yellowfin, skipjack, bigeye and of other tuna species in the Indian Ocean

With a total catch in 1999 of over 700,000 tonnes and an estimated value of over US$2 billion (value at landing), the Indian Ocean tuna fishery is one of the world's biggest. Although European Union, Japanese and Taiwanese fleets take the bulk of the catch, the tuna resources are also of enormous importance to various Indian Ocean coastal and island states (such as Maldives, Seychelles, Madagascar, India, Sri Lanka, Oman, etc.). In these countries revenue earned from artisanal catches and/or licenses is often vital to both the national economies and to food production.

Despite the value and importance of the resources, the stock assessments essential for management for all of the key species remain inadequate and unreliable. This is largely because the key biological and population dynamics parameters essential for building stock assessment models remain unknown, or at best poorly understood. In the absence of reasonable stock assessments, the precautionary approach dictates that a more cautious attitude to management is required (FAO Expert Consultation 2000). Thus, even though stock assessments of bigeye are inconclusive, concerns have arisen over the status of bigeye stocks following a huge increase in the catch of juvenile bigeye associated to FADs in the Western Indian Ocean as well as a reduction in average weight and long term declines in longline catch rates (IOTC Scientific Committee Report 1999). This has lead the IOTC to introduce a project for a time and area moratorium limiting purse seine fishing on floating objects in order to decrease catches of juvenile bigeye.

In 1999, the IOTC Scientific Committee agreed that a well-designed, large scale tagging experiment was the best and most cost effective means of collecting much of the data required to improve the stock assessments of the major tropical tuna species. Such large-scale tagging programmes have been very successful in the western Pacific Ocean and data from tagging programmes are critical elements of stock assessments in the SPC Standing Committee on Tunas and Billfish.

The IOTC Working Party on Tagging (WPT) met in September 2000 to discuss and document the objectives and implementation of an Indian Ocean tagging programme.

Our purpose in developing this summary document is to present a coherent argument to potential donors for a large-scale tagging programme on tropical tunas in the Indian Ocean. Thus, the objectives of this document are to:

1. Demonstrate the links between key management issues and the proposed tagging programme;
2. Summarize the expected key outputs from a basin-scale tagging programme throughout the Indian Ocean;
3. Provide an overview of the organizational and logistical requirements for a successful programme, and
4. Provide an indicative budget.

A detailed discussion of each element of the prospectus is provided in Annex II.

KEY MANAGEMENT ISSUES AND THE NEED FOR A TAGGING PROGRAMME

Table 1 provides an overview of important management issues for the IOTC that would be addressed by the proposed tagging programme. Although the list is by no means exhaustive, it is clear that the results of the tagging programme will have far-reaching implications on the ability of the Scientific Committee to respond to key questions from the IOTC.

The lack of reliable stock assessments for the tropical tunas, as well as swordfish, in the Indian Ocean creates a major problem for the IOTC. Without an adequate understanding of the status of stocks, the Commission is left to decide whether the rapid increases in effort and catch over the last decade should be allowed to continue, and whether even the current levels of catch are sustainable.

There is unanimous agreement within the IOTC Scientific Committee that the need for improved stock assessments and scientific advice to the Commission is urgent. This is to avoid the overexploitation of stocks of tropical tuna species that has often been seen in other oceans. For this reason, it is critical that a tagging programme should begin as soon as possible.

Further complicating matters for the IOTC and the Scientific Committee is the proliferation of drifting fish aggregating devices (FADs) in both the eastern and western Indian Ocean. Since 1992, FADs have increased the catch rates of purse seine fleets very significantly. The high catches of small yellowfin and bigeye around FADs in the western Indian Ocean have raised the question of whether FAD fishing is more likely to lead to unsustainable catches than purse seine operations based on unassociated schools. A related concern is the effect high purse seine catches of small fish on FADs is having on longline, purse seine and artisanal fisheries for yellowfin and bigeye which target larger and mature size classes. There is no evidence from other parts of the world that FADs increase the biological productivity of tuna stocks in an area. Thus, it seems a distinct possibility that increasing the vulnerability of fish to purse seine fleets may have a very significant effect on tuna stocks. To assess this objectively however, we urgently need information on the dynamics of tunas around FADs – e.g. how fast they aggregate, how long they remain in residence, their movement patterns between FADs and the factors that affect the attraction of FADs. All of these questions would be addressed by a component of the proposed tagging programme.

WHAT WILL A TAGGING PROGRAMME DELIVER?

In the 1990s. a very well-planned and implemented Regional Tuna Tagging Project in the Central and Western Pacific, funded by the EU and run by the Secretariat for the Pacific Community in the Western Pacific, provided a wide range of valuable data that have been fed directly into stock assessment models integrating spatial and temporal parameters and provide more realistic estimates of population dynamics. The data also permitted the study of interactions between fisheries and areas. It is anticipated that this broad scale and comprehensive programme will provide for the main Indian Ocean tuna stocks data to address the following issues:

- Crucial model parameters necessary for stock assessment, i.e. age specific estimates of natural and fishing mortality;
- Structure of stocks and movement of Indian Ocean tropical tunas;
- Exploitation rates and differential vulnerability by area and gear;
- Influence of FADs, seamounts and areas of elevated vulnerability on the movement and exploitation of Indian Ocean tunas, particularly of juvenile yellowfin and bigeye aggregated to drifting FADs;
- Data useful for estimating rates of fishery interaction.
- Life history parameters, i.e. growth rates, and validated age estimates.
- Role of the oceanographic and bathymetric environment on movement and exploitation of Indian Ocean tunas.

WHERE AND WHEN WILL THE PROGRAMME TAKE PLACE?

The complexity and scale of questions to be addressed by the tagging programme dictate that it should be conducted over the entire Indian Ocean basin, involving at least three years of field tagging. The programme is expected to last five years, including initial phases and tag recuperation.

The broad geographical basis is required to determine:

- The nature and extent of movement of all the key species throughout the Indian Ocean;
- Interactions between surface and longline fisheries throughout the Indian Ocean;
- Levels of exploitation across the entire range of stocks; and
- Age- and area-specific population parameters.

Tagging over a three-year period is required to:

- Tag individual cohorts over sequential years, an important element in estimating age specific fishing and natural mortality; and
- Ensure that regardless of major climatic variability (El Niño/La Niña), tags can be released throughout the geographic range of the fisheries and across the size range of each species.

Tuna tagging programmes throughout the world have historically tagged fish less than three years old, principally because these age classes occur in large schools on the surface, where they are available to pole and line catching boats. However, only small numbers of fish are recaptured after more than 2-3 years at liberty when only young fish are tagged because of natural and fishing mortality and tag shedding. This makes the estimation of age specific population parameters problematic. As one of the core objectives of the proposed programme is to provide estimates of these parameters over a broad range of sizes/ages, the programme will tag a wide a range of sizes/ages in each species, using a variety of tagging platforms.

TIME LINES AND ORGANIZATIONAL REQUIREMENTS

Table 2 provides an overview of the time lines for the planned tagging programme.

Given the urgent requirement for stock assessments, we propose to begin tagging in 2002. A number of small training, exploratory tagging and promotional pilot projects would begin as soon as possible as precursors to the main programme (c.f. Table 3). These would be funded outside the programme budget. The total cost of this planned pilot tagging that should be done as soon as possible is US $434,000.

Given the ocean-basin scale of the fieldwork, the tagging programme will need to be a multi-national effort. All IOTC members and co-operating non-contracting parties would be approached to assist with the programme. However, we propose that IOTC would take the lead

role of programme co-ordination through the formation of a special Tagging Programme staff unit. The unit would comprise the following staff:

1. Chief Scientist - Co-ordinate the programme, senior staff supervision, data analyses, reporting.
2. Field Co-ordinator, - Responsible for field logistics, tagging protocols, supervision of tagging staff.
3. Four Senior Tagging technicians.
4. Promotions/Liaison/support officer.

As in-country support for the tagging programme (e.g. Oman and Iranian support in the Oman Sea, Indonesian and Australian support in the eastern Indian Ocean etc) would be essential for its success, an important role for the IOTC Secretariat and the Chief Scientist would be to garner broad support.

Similarly, support by in-country scientists would be very useful through the data analysis phase of the programme. To promote contributions/support, we recommend that the IOTC request support from members and co-operating non-contracting parties through the Scientific Committee for co-ordination of local tagging and scientific support of the tagging programme.

LOGISTICAL REQUIREMENTS

The proposed tagging programme is both complex and highly ambitious in terms of its logistical planning and implementation. Employing the experience of the highly successful, EU funded, Regional Tuna Tagging Project run by the Secretariat for the Pacific Community in the Central and Western Pacific, the WPT has developed a provisional work plan and logistical framework on which to base estimates of budget and manpower requirements. The key elements of the work plan include:

- Use of two major pole and line tagging platforms, based in the east and west of the Indian Ocean supported by a range of smaller vessels to be used for specialist tagging activities (e.g. longline/handline releases, Maldives in-country tagging etc);
- Application of conventional, archival and satellite tag technology;
- A commitment to standardized methodology to produce a high standard of tag releases;
- A thorough and ongoing publicity and liaison effort to maximize reporting of tag recaptures and provision of high quality size and location data;
- Comprehensive data analyses incorporating the integration of results across the time and spatial scales for which data will be collected.

Each of the major costs of this large tagging programme are given as table 4 of this report. The total cost of this planned IOTTP is US $18.788 million (its major components are summarized in Figure 2).

CONCLUSION

The Indian Ocean Tuna Tagging Programme (IOTTP) has been designed to provide data that is urgently required for the development of reliable stock assessments for the major tuna stocks of the Indian Ocean.

We are proposing to base the IOTTP on the approaches taken by the two very successful, European Union-funded, Regional Tuna Tagging Programmes run by the Secretariat for the Pacific Community (SPC) in the Western Pacific in the early 1980s and 1990s. There are many similarities between what we are proposing and the SPC programmes – in the logistical requirements, target species and analytical procedures required for processing the data. Thus, we have every reason to believe that the IOTTP, to be run by the IOTC secretariat and its member countries, will be successful in meeting its broad ranging objectives.

There is a strong case to be made that the sooner we start an IOTTP the better. Many of the stocks of tropical tuna species in the Indian Ocean have come under very high levels of exploitation in the 1990s, and at this point stock assessments are not able to determine whether the levels of exploitation are sustainable. A tagging programme will provide the data that is needed to make this evaluation. Given the lag between release of tags and adequate numbers of returns to allow analysis of key population parameters, we believe it is essential that the IOTTP should start immediately.

The cost of the six-year IOTTP, and associated pilot studies, is estimated at US$18.5 million. This amounts to less than 1% of the annual landed value of the fishery (knowing that the total value of the fishery is much higher than this figure). Given the immense social and economic value of the fishery throughout the Indian Ocean, we believe this level of investment is fully justified. To delay this essential programme and wait until stocks are clearly in decline before acting would be contrary to the philosophy and treaties underpinning responsible fisheries management in the 21st century.

We are now faced with the question of who should fund such a programme. In identifying the key requirements and developing a prospectus and logistical plan for the IOTTP, we have concluded that the responsibility to fund programme lies principally with the industrialised countries that take the vast majority of the catch of the key tropical tuna species in the Indian Ocean.

Table 1: Overview of important management issues addressed by the IOTTP.

Management Issues	**Current scientific responses to management issues**	**The role of a tagging programme in improving scientific responses to management issues**
1. What is the likelihood that the recent rapid increases in catches of small yellowfin and bigeye on FADs are having significant negative impacts on the Indian Ocean populations of these species? (B, Y) 2. Are there too many boats fishing in the Indian Ocean? (B, Y, S)	Very difficult to answer because: • Critically inadequate understanding of key biological parameters (age specific M& F, growth etc) lead to: • Inadequate stock assessment for any of the species	• Tagging data will provide estimates of growth, age specific fishing and natural mortality for input into stock assessment models. • Tagging data can also be used to estimate exploitation rates for each species, and as such provide allow the Scientific Committee to determine whether current levels of fishing are likely to lead to significant population decline.
3. Is the Indian Ocean basin the appropriate management unit for each of the key species?	As the stock structure of all key species remains uncertain, it is not possible to determine this with any confidence.	• Data on movement patterns provided by a well designed, ocean basin-wide tagging programme would provide a basis for determining the stock structure of all species tagged.
4. What is the influence of FADs on the distribution and efficiency of the Indian Ocean purse seines fishery?	Unknown, because the influence of FADs on the movement and exploitation of tropical tunas in the Indian Ocean is unknown.	• Within a tagging programme a core objective would be to determine the movement patterns and residency of fish at FADs and to examine the interactions between FADs,
5. What is the efficiency of time-area closures as a management tool for tropical tunas in the Indian Ocean?	Without information on residency, movement patterns and mixing rates it is not possible to evaluate this.	• As above, data from a tagging programme would allow scientists to advise managers on the likely impact of time-area closures, taking into account the residence times, movements patterns and rates of fish within different portions of the Indian Ocean.
6. What is the level of interaction between skipjack fisheries in the central and western Indian Ocean? 7. What are the nature and level of interactions between purse seine and longline fisheries? (B, Y)	• Largely unknown because little to nothing is known about residency, movement patterns and mixing rates of any species in the Indian Ocean • Also the vertical movement of yellowfin and bigeye in the Indian Ocean poorly understood.	• A critical output of a basin-scale tagging programme would be to provide data with which to examine the nature and extent of interactions between the many different sectors of the Indian Ocean tropical tuna fishery. • Archival and pop-up satellite tags will provide the necessary information on habitat preferences of yellowfin and bigeye, and how these may change with age.

Table 2: Chronological diagram of the planned IOTTP activities.

	Pilot Study	IOTTP					
	Year 0	***Year 1***	***Year 2***	***Year 3***	***Year 4***	***Year 5***	***Year 6+***
Funding agreement by donors	**yes**	***yes***					
Tagging WG	1 WG early in year 0	1 WG early in year 1	1 WG	1 WG	1 WG	final symposium	
Tagging equipment	initiate: early year 0	full scale	maintenance	maintenance	maintenance		
Bait supply	Bait studies	organize access to bait	yes	yes			
Main tagging by P&L vessel			yes	yes			
Small scale tagging	Small scale Tagging		yes	yes	yes		
Tagging by sport fishers	initiate	full scale	full scale	full scale	full scale	full scale	
Training of technicians	initiate	full					
Publicity & Communication	initiate	full publicity	full publicity	lower publicity	lower publicity	lower publicity	lower publicity
Rewards and lotteries	initiate	yes	yes	yes	yes	yes	yes
IOTC Scientific staff	1 study coordinator	Programme leader	Programme leader	Programme leader	Programme leader	Programme leader	
IOTC Scientific staff		Field coordinator	Field coordinator	Field coordinator	Field coordinator		
IOTC Scientific staff			4 tagging technicians	4 tagging technicians			
National tagging coordinators	yes	yes	yes	yes	yes	yes	

Table 3: Proposed budget for the PILOT study 2001 (in thousands of US dollars)

Type of cost	Cost
Seychelles LL tagging	30
La Réunion LL tagging	45
Sport fishery tagging	60
Oman tagging	20
Maldives tagging	20
Mayotte tagging	25
Pole & Line Seychelles tagging	50
Tags, tagging equipment and accessories	15
Small scale publicity	10
Tagging expert salary	120
Contingency 10%	39.5
Total budget	**434.5**

Table 4: Budget summary for the tagging programme (IOTTP) (in thousands of US dollars)

	Year					
Type of cost	**1**	**2**	**3**	**4**	**5+**	**Total**
Small vessels: Longline, artisanal & scientific		200	200	200		600
Sport fishery tagging: coordination & support	40	10	10	10	10	80
Tags, tagging equipment and accessories	170	45	45			260
Rewards and lottery for recoveries		100	100	100	50	350
IOTC technical and scientific staff	370	930	930	370	370	2 970
Publicity and communication	80	10	10	10	50	160
Training of tagging technicians	10	10	10	10		40
Support salaries of tagging staff		100	100	100		300
Travels costs	50	100	100	100	50	400
Meetings		20	20	20	50	110
Large P&L East rental & running cost		*1 500*	*1500*			*3 000*
Large P& West rental & running cost		*4 000*	*4 000*			*8 000*
Archival tags		*250*	*250*	*250*		*750*
Bait supply		20	20	20		60
Contingency	72	729.5	729.5	119	58	1 708
Total	**792**	**8 024.5**	**8 024.5**	**1 309**	**638**	**18 788**

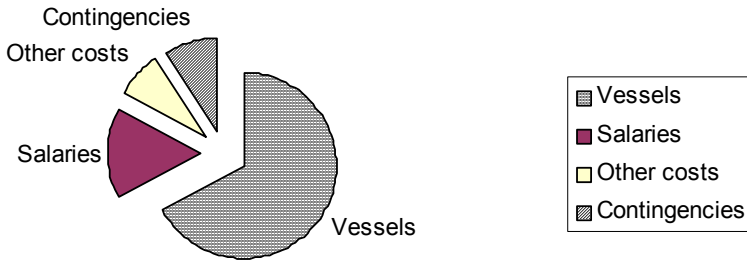


Figure 2: Synthetic diagram showing the main chapters of the IOTTP planned budget (total budget of US$18.788 million)

APPENDIX XIII. DRAFT RESOLUTION PROPOSED BY JAPAN CONCERNING AN ACTION PLAN TO ENSURE THE EFFECTIVENESS OF THE CONSERVATION PROGRAM FOR BIGEYE TUNA IN THE IOTC AREA OF COMPETENCE

The Indian Ocean Tuna Commission;

Considering the need for action to ensure the effectiveness of IOTC objectives to conserve and manage bigeye tuna in the IOTC Area of Competence (hereinafter referred to as "the Area"),

Recognizing the obligation of Contracting Parties and the Commitment of Cooperating Non-Contracting Parties to comply with the IOTC conservation and management measures,

Recognizing that a considerable number of vessels fishing for bigeye tuna in the Area flying the flag of nations and fishing entities which are not members of IOTC, or do not cooperate with IOTC,

Expressing concern over the status of exploitation of bigeye tuna in the Area,

Being aware of the strenuous efforts by Contracting Parties to ensure enforcement of IOTC's conservation and management measures and to encourage non-member nations and fishing entities to abide by these measures,

Finding that the IOTC regime's ability to manage bigeye tuna in the Area on a sustainable basis is diminished by harvesting contrary to IOTC recommendations and the need to take further strenuous measures to ensure the effectiveness of the IOTC bigeye tuna conservation program,

RESOLVES that:

1. The Commission or the appropriate subsidiary bodies shall review annually the information submitted to the Commission pursuant to paragraph 5 of Resolution 98/04 concerning Registration and Exchange of Information on Vessels, Including Flag of Convenience Vessels, Fishing for Tropical Tunas in the IOTC Area of Competence and Concerning Reduction of Fishing Capacity of Bigeye Fishing Vessels, the information obtained through national statistics and trade and other relevant information obtained in ports and at the fishing grounds, and identify those Contracting parties and non-Contracting Parties or fishing entities whose vessels have been fishing bigeye tuna in a manner which diminishes the effectiveness of the IOTC conservation and management measures, based upon the above information.

2. The Commission shall request those Contracting and non-Contracting Parties or fishing entities identified in paragraph 1 above to take all necessary measures so as not to diminish the effectiveness of the IOTC conservation and management measures including the revocation of vessel registration or fishing licenses of the vessels concerned, as well as to become Contracting Parties if applicable

3. The Commission or other appropriate subsidiary bodies shall review annually the actions taken by those Contracting Parties and non-Contracting Parties or fishing entities referred to in paragraphs 1 and 2 above in order to identify those Contracting Parties and non-Contracting Parties or fishing entities which have not taken appropriate actions as requested.

4. To ensure the effectiveness of the IOTC conservation recommendations for bigeye tuna in the Area, the Commission will recommend, in accordance with Article IX, paragraph 1. of the Agreement, that Contracting Parties and Cooperating non-Contracting Parties take measures with respect to importation of bigeye tuna products, harvested in the Area in any form, from the Parties or fishing entities identified in paragraph 3. Such measures shall be multilateral, consistent with international law and shall be implemented in a fair, transparent and non-discriminatory manner.

APPENDIX XIV. RESOLUTION 00/02. RESOLUTION ON A SURVEY OF PREDATION OF LONGLINE CAUGHT FISH

The Indian Ocean Tuna Commission (IOTC),

Convinced that the proper management of all marine resources should be based on scientific finding and on the principle of sustainable use as reflected in the UN Convention on the Law of the Sea, 1982, the Kyoto Declaration and FAO's International Plans of Action and Code of Conduct for Responsible Fisheries,

Mindful that the 23rd session of COFI agreed that greater consideration should be given to the development of more appropriate ecosystem approaches to fisheries management, in collaboration with both FAO and regional fisheries bodies,

Recalling that in 1999, the Commission, recognizing the importance of the ecosystem approach to fisheries management, endorsed a five year research programme on the predation by marine mammals and sharks on tuna caught on longlines, in order to collect comprehensive information, improve catch statistics, find possible methods of preventing predation and explore any possible implications for stock assessment of tunas and the ecosystem approach,

Noting that preliminary estimates of predation of tuna and tuna-like species caught by the longline fishery indicate damage rates in some parts of the IOTC Area in the range of 10-30 % (IOTC/SC/00/11),

Also noting that the Scientific Committee agrees that the extent of predation unknown and might have important implications in terms of catch statistics and stock assessments and encourage the participation in the survey of other Member and Non-Member countries,

ENCOURAGES all Contracting Parties and Non-Contracting Parties to participate in the survey of predation of longline caught fish and submit the preliminary results to the Secretariat by the end of September 2001,

REQUESTS the Scientific Committee to present the preliminary results of the study on predation for its consideration at the Sixth Session of the IOTC in 2001.

APPENDIX XV. APPROVED BUDGET FOR THE YEAR 2001

Approved Budget for the year 2001

	2001	
	w/m	US$
STAFF		
International		
Secretary - P-5	12	169,000
Deputy Secretary - P-4	12	153,000
Data Manager - P-3	12	138,000
Programmer - P-3	12	138,000
Consultants	3	45,000
SUB-TOTAL	51	643,000
ADMIN. SUPPORT		
Administrative Asst. - G-6	12	22,857
Systems analyst/programmer	12	0
Bilingual secretary - G-4	12	11,451
Publications Assistant – G-5	12	15,778
Driver/Messenger - G-2	12	16,029
Messenger/Cleaner - G-1	12	8,664
COMPONENT TOTAL	123	717,779
Duty travel		75,000
Sampling		60,000
Meetings		50,000
Interpretation, translation & editing		80,000
Equipment		20,000
Operating expenses		40,000
Miscellaneous		20,000
SUB-TOTAL		1,062,779
Deductions (staff housing)		-24,000
TOTAL		1,038,779
FAO Servicing Costs		46,745
GRAND TOTAL		1,085,525

APPENDIX XVI. SCHEME OF CONTRIBUTIONS FOR THE YEAR 2001 (IN US$)[1].

Scheme of Contributions for the year 2001 (in US$)				
Country	***GNP class (WB 1998)***	***OECD status***	***Average Catch (t) (1996-1998)***	***Contribution***
Australia	$20,300	Yes	7,040	$85,105
China	$750	No	108,994	$38,305
Eritrea	$200	No	298	$12,487
European Community	$20,000	Yes	207,173	$322,791
France(Terr)	$24,940	Yes	603	$77,460
India	$412	No	94,647	$34,898
Japan	$32,380	Yes	50,029	$136,161
Korea, Republic of	$7,970	Yes	15,094	$46,424
Madagascar	$260	No	10,666	$14,950
Malaysia	$3,600	No	11,278	$31,177
Mauritius	$3,700	No	3,641	$29,363
Oman	$4,000	No	31,530	$35,987
Pakistan	$480	No	34,246	$20,551
Seychelles	$6,450	No	10,117	$30,901
Sri Lanka	$810	No	72,953	$45,826
Sudan	$290	No	1	$12,416
Thailand	$2,200	No	49,960	$40,365
United Kingdom (Terr)	$21,400	Yes	0	$70,358

[1] The table shows figures for average catch that include minor corrections relative to those shown in IOTC/00/05.